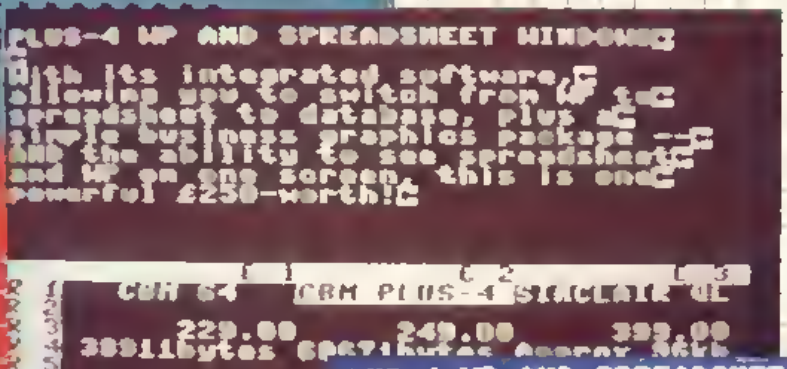
COMMODORE user

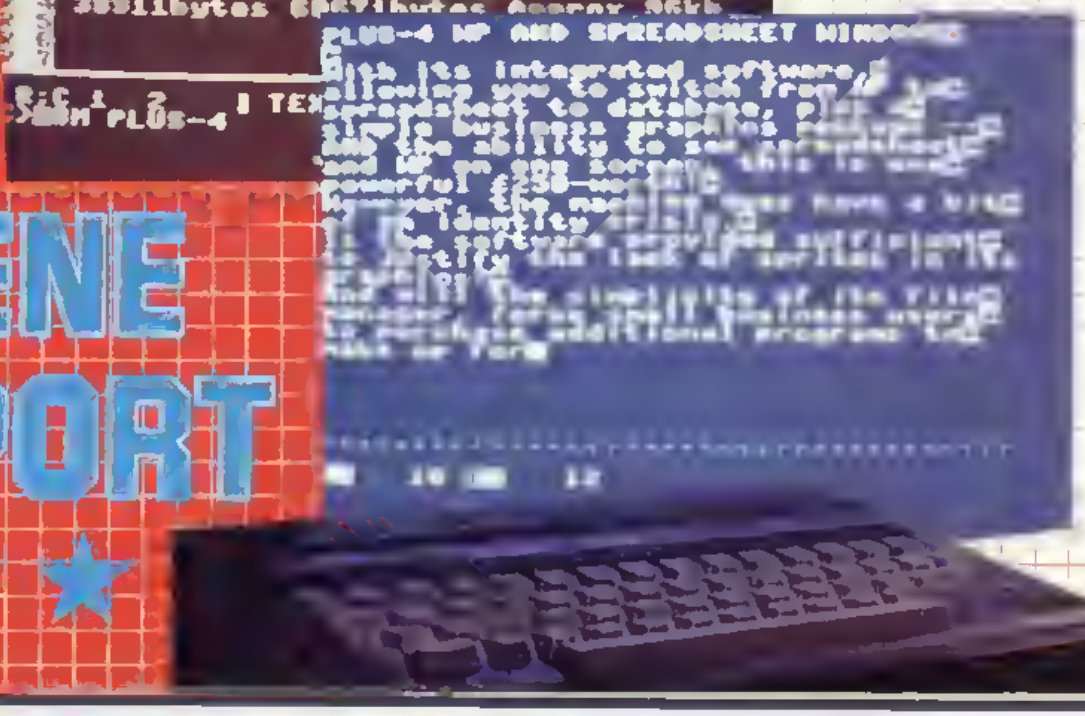
Incorporating Vic Computing An EMAP Publication Volume 2 Issue 2 November 1984 UK Price 85p

PLUS/4 – THE SOFT SIDE

THE SOUND OF MUSICALC



US SCENE REPORT



The king returns with a vengeance!

all the fun of the fair and the fury of kong

SPECTRUM 48k
6·90
COMMODORE 64
7·90

ocean

Ocean House
6 Central Street
Manchester M2 5NS
Tel: 061 832 6633

selected branches of WOOLWORTH, WHSMITH, Rumbelows, Spectrum Shops and all good software dealers. Trade enquiries welcome.

Contents

Plus/4 – the soft side
11

Last month, Karl Dallas took a preliminary look at Commodore's new Plus 4 computer and majored on its extended Basic. This includes its built in software – file manager, wordprocessor, spreadsheet and graphics packages. That lot amounts to the Plus 4's major selling point. But how really useful are they?

Home Control – part 3: Control without wires
16

In the third part of his series, Chris Durham looks at a commercially available control system that uses your home's wiring system to link your Vic or 64 to various devices – then it's on to the wonderful world of ultrasonics and infra red transmission.

MusiCalc – a real synth package for your 64
24

The wealth of features in the MusiCalc range makes it probably the most powerful and versatile synthesiser package yet available for the 64 – and the most expensive. Nick Pickett tried out all three MusiCalc modules to find out whether it's all worth the money.

Make your programs user-friendly – part 2:
30

Chris Preston continues his indispensible series with another set of rules to help you produce better programs.

Adventuring – into the Valley
38

John Ransley continues his Adventuring for regulars spot, news, reviews, handy hints and tips.

Wordprocessing on the cheap: Textpro reviewed
42

This month, wordprocessing guru Chris Durham looks at Textpro, one of the cheapest WP offerings for your 64. So what do you get for your tenner?

Stateside Report
46

American scene observer, Dan Gutman, starts a new regular column specially for Commodore User.

COMAL versus Basic
52

Comal enthusiast Brian Grainger continues his look at this alternative language by comparing its command structure and facilities with those of Basic. Which came out on top?

Victuals for Vic and 64
65

A routine that names COSUBs for both Vic and 64, a challenging Cross Collector game for the 64, and a set of useful routines (given in both Basic and Assembler) for your Vic.

Hi-tech home management: Abrasco's Home Manager reviewed
75

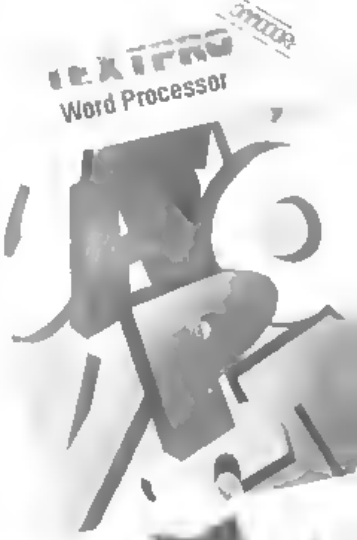
Abrasco's Home Manager is a cassette or disk based suite of programs that lets you organise a diary, address book, do your home budgeting and organise your dealings with the bank. That's a tall order for a package costing a mere £12.50 on tape and £15 on disk. Kon Ryder finds out how useful it really is.

The Forth Dimension – part 3
86

Richard Hunt concludes his intensive introduction to the Forth language with a look at the Stack.

Do it with a database
91

Karl Dallas introduces the concept of managing information and how to choose a program to meet your needs – and goes on to list a few database packages that have impressed him most.



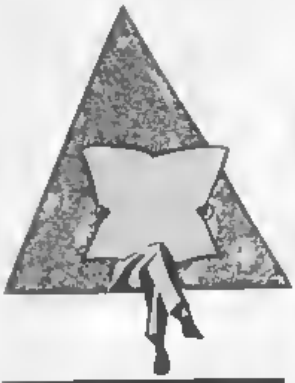
People

Acting Editor:	Bohdan Buciak
Production:	Mike Panenden
Contributors:	Chris Durham, Karl Dallas, John Ransley, Fred Reid
Ad Manager	Julie Madigan
Advertising	Julia West
Magazine Secretary:	Josephine Collins
Publisher:	Rita Lewis

Registered Offices: Priory Court, 30-32 Farringdon Lane, London EC1R 3AU
1984 An EMAP Publication.

Editorial	01-251 6222
Advertising	01-251 6222
Production	01 251 6222

Subscriptions Back Issues (See last page) 0732-361216



Use your loaf

The market for educational software is now well under way, but it is still courting only the tender of age and has left adult computer users twiddling their thumbs. **Tryptich Publishing**, a new British publishing house, is trying to remedy that situation with its range of Brainpower software, available for the Commodore 64.

The range sets out to enable adults to learn practical skills – skills like starting your own business, project planning, business forecasting and general decision making. "Our target market is people who have bought a micro and want to put it to serious use without necessarily learning to program", says Tryptich MD, David Juster.

Each title in the series costs £19.95 on tape (£24.95 on disk), and they all contain an educational book and program, together with a practical applications program. Five titles are currently available for the Commodore 64.

Entrepreneur is designed for the budding businessman and deals with the intricacies of budget forecasting, profit and loss accounts, balance sheets, overheads, assets and liabilities. *Forecaster* delves into financial planning and forecasting at a deeper level – sounds rather like an electronic spreadsheet calculator.

Numbers at Work deals with "all the arithmetic problems you're likely to face in your day to day business life", according to the blurb. Another package, *Decision Maker*, lets you explore all the avenues in making those tough decisions whether they involve business or family. And finally there's *Project Planner*, a planning and assessment tool. Two more programs, Cash Controller and Statistician, are already in the pipeline, according to Tryptich. More details on 0276 62144.

Keeping tabs on your tapes

Commodore users who store their programs on cassette soon find that their index cards and cassette labels become a mass of indecipherable scribblings. A new company called **Tape Tabs** is all set to remedy that for you. And it's a pretty simple idea at that.

Tape Tabs will sell you a pack of ten cassette index cards with a different and colourful design on each. There are four different packs, each with a different coloured spine. That gives you 40 different insert designs – and the packs cost a mere 88p each. You can also buy a pack of ten cassette labels which contain three sheets of rub-down letters for "a professional finish". Those cost 85p, too.

For the more artistically adventurous, there's a DIY pack (same price) which lets you use your own designs for your cassette insert. Looks like a pretty cheap and colourful way of getting your tape library organised. You should be able to buy Tape Tabs where you buy your blank tapes. More details from Tape Tabs, PO Box 157, London SW11 3NT.

Zapping with Busby

An unlikely new software house is set to squeeze itself into the already bulging games market. It's called **Firebird**, a subsidiary of British Telecom. It's claim to distinction is selling games for a mere £2.50 and putting a full colour screen-shot on cassette inlays. If you're slightly put off by the cheapo price, Firebird has the reassuring comment: "despite the pocketmoney price, Firebird will offer the same quality as some products costing twice as much".

So what's on offer? Five fast-loading arcade titles (*Mr Freeze*, *Booty*, *Exodus*, *Headache* and *Zulu*) are soon to appear for the Commodore 64. Commendably, Firebird has not forgotten the Vic, which gets two arcade games: *Snake Bite* and *Mickey the Bricky* (those don't fast load). No review copies yet – maybe we should phone them.

Tymac Talkies

Tymac UK, part of the American Tymac Controls Corporation, has introduced a range of 'talking' games for both the Vic and Commodore 64 which don't need a synthesiser attachment – speech is digitised and loads with the game itself.

For the Vic, Tymac has two arcade-style games featuring "words, music, arcade sounds and sound effects" called *Samurai* and *Code Name. Deadline*. There's also an educational game called *Type Sniper* (also available on the 64) which helps players use a typewriter style-keyboard. All three offerings are available on cartridge for £12.95. A graphics package called *Wizard's Graphics* should be available soon, according to Tymac, on disk costing £12.95.

For the Commodore 64, there's *Flyer Fox* (you're a fighter escorting a Jumbo jet), *Gandalf* the *Sorcerer* (castles, sorcery et al) *Pegasus* and *Trials of Peseus* (in both games you search for treasure) and finally *First Strike* (something tasteless to do with firing nuclear missiles). The lot is available on cassette for £9.99 and on disk for £14.99. No news on how effective the 'talk' facility is – we're waiting for our review copies.

SHORTS

Stew on the draw. Those of you who didn't buy a Stack lightpen because it lacked a drawing program will be pleased to hear that the company has (at long last) rectified matters. It's offering the lightpen, complete with a paintbox package, ten games (all on the same tape) and a useful 40-page manual for a very reasonable £28. If you already own a lightpen, Stack will offer you an 'upgrade kit' for a mere fiver.

The soft touch

Touchmaster is a new pressure-sensitive digitising tablet from a new company of the same name the idea being that it replaces your Vic or Commodore 64's keyboard as an input device.

Touchmaster reckons that home computers generally are not fully utilised, the main reason being the resistance to using the conventional keyboard, especially from younger children.

The tablet's pressure sensitive surface is A4 in size, and has a quite impressive resolution of 256 by 256. Interface options include serial and parallel so, in theory, you could use it with a wide variety of micros. It has a data transfer rate of 9600 baud.

Touchmaster is not just marketing the product as a drawing device with appropriate software, but with a range of games, called Touchware, which include an overlay that fits over the pressure-sensitive surface. Instead of using keys to play games, you touch various parts of the inlay.

At present, the range includes some early learning educational programs, board games like chess, draughts and Othello, a few arcade and adventure games, a graphics editor and a music synthesiser. Prices haven't been finalised yet but the education and games software should be selling for around £15.

Touchmaster itself comes complete with 'multipaint' drawing program, interface for your Vic or 64 and costs £149.95. More details from: Touchmaster Ltd, PO Box 3, Port Talbot, West Glamorgan.

SHORTS

Fresh start for Virgin: *Virgin* has announced that it's to make a *fresh start* in the *games market* by *throwing out* all the *duff titles* from its *existing catalogue* and *selling what remains for £2.99*. That *means you'll get Falcon Patrol* and *Hideous Bill* on the *64*, and *Mission Mercury* on the *Vic* at a *bargain price*.

Says Virgin MD Nick Alexander, "we *have changed with the market - this autumn we are only releasing 6 titles*, all of *which have been extensively researched* and *tested for market appeal*, and *we're going to market hell out of them*" – and *spend around £250,000 doing it*. *Of those six titles, three are for the 64: Falcon Patrol II, Terrorist*, and *Sorcery*. *They all cost £7.99*. *Maybe next year they'll be somewhat cheaper?*

The view from Commodore

Jaded press hacks may have been slightly bored at Commodore's official launch of its new Plus/4 and Commodore 16 machines (after all, we've been hearing and writing about them since most of us can remember), but ears must have pricked up at Howard Stanworth's speech. Commodore's UK general manager managed to reel off a set of statistics and proclamations that sounded both impressive and provocative.

Micro manufacturers generally feel the need to justify new models and Stanworth didn't flout tradition with. "these two machines will reinforce Commodore s position of leadership in a home computer market which is becoming more sophisticated and increasingly competitive in the process". That sounds fine until you consider the two machines aren't particularly sophisticated and not quite as competitively priced as Stanworth would have us believe.

But with bumper sales figures still to announce, that won't bother him much: figures like Commodore achieving quarter billion dollar worldwide sales in the last financial year and total UK sales exceeding £100 million, "it leaves every one of our competitors in the home computer market so far behind that I believe it will be a very long time before our position as Number One is likely to be even challenged" – and all that said in a rather matter-of-fact way.

More amazing statistics to follow: Commodore is investing more than £20 million in its new Corby plant where Commodore 64s are being churned out at the rate of one every five seconds – and that's only half its capacity. No wonder then, that Stanworth should be able to hold aloft the one millionth 64 to be produced at Corby since it opened fifteen months ago.

Battle for Britain

Despite these mammoth sales figures, the Battle for Britain being fought between the 64 and the Spectrum rages on. Although Stanworth admits the Spectrum sold better in terms of units, the lead in 'value' sales must go to Commodore. That is probably changing too. According to Stanworth, a recent Gallup poll puts Commodore and Sinclair neck and neck in terms of numbers of machines sold.

That brings Stanworth on to Christmas and the market for the new machines, and the consequent lack of a market for the Vic-20, which has now sold around two million world wide. The Commodore message is clear: "the 16 will eventually supercede the Vic-20 as the world's favourite entry price computer". Like the Vic, the 16 is being sold as a Starter Pack, for the same price of £139.99. That should surely sound the Vic's death knell.

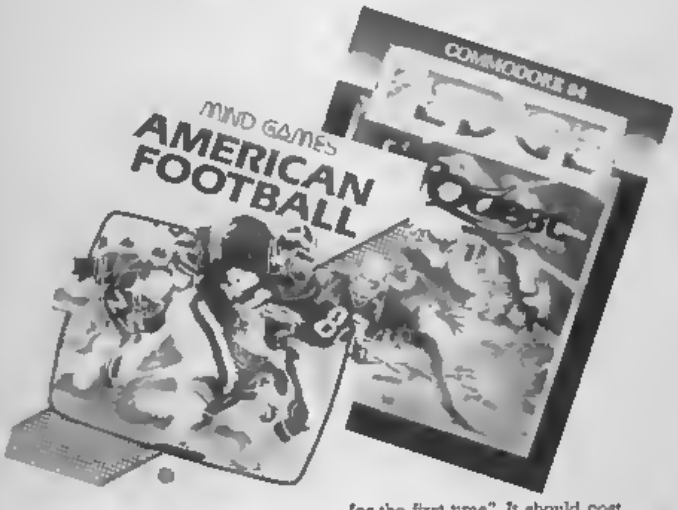
About the Plus/4 Stanworth opined, "we believe that the product is the first evolutionary step towards an affordable home computer for the more serious user". Confident remarks but £299 is not outstandingly 'affordable'. The 64 is £100 cheaper and offers a wealth of 'serious' software. For the extra money, a good shopper will acquire better software than the Plus/4's ROM variety. Asked whether Commodore planned to drop the 64's price, Stanworth replied, "unequivocally no".

The philosophy behind the new machines may be difficult to follow but, one thing's for sure, Commodore will be bombarding us with it through the weeks leading up to Christmas, the final word from Stanworth being, "we will be spending more on advertising and promotion than any of our competitors, and probably more than any other consumer electronics company in Britain".

Not the £1 million Bingo winner. Howard Stanworth with the millionth 64 out of Corby.

What's on Show

by Henry Deckhand



The Personal Computer World Show, now being plugged as "the most popular microcomputing event in the world", has become the traditional venue for the industry's pre-Christmas lumbering up: suppliers of new machines, games and add-ons jostling for position to stick their products in front of your nose, or better still, your wallet.

Despite that, there wasn't much, apart from lorryloads of new games, to set the average Commodore user's pulse beating. Commodore itself showed its nearly-new machines, the Commodore 16 and Plus/4, and quashed ugly speculation that the 16 is not capable of upwarding a game by announcing a range of three cartridges (*Jack Attack*, *Viduzzles* and *Strange Odyssey*) and a cassette game (*Mayhem*), featuring a certain 'Blibbles' character. With four games being packaged up as 'freebies' in the Commodore 16 Starter Pack, 16 owners won't be twiddling their thumbs.

But Commodore did reveal something really new, the *Music Maker* package for the 64, which includes a 24-key keyboard (it fits on to the 64's keyboard), a tutorial manual and a book of songs – well, mostly Beatles oldies. According to an enthusiastic yet inaccurate Rae Potter, Commodore's UK software marketing manager, the package will "unleash the fun music potential of the Commodore 64 for the first time". It should cost around £30 and be available before Christmas.

The Commodore 64 modem (£99.99) you need to access the Compunet interactive viewdata service, is now officially available, and the service officially up and running, having received an airing at the Commodore Show in Hammersmith earlier this year – before the modem got official British Telecom approval. Now you'll be able to send and receive data, access masses of information and buy software et al from your armchair – the sedentary society has truly arrived.

Fun and Games

Visitors who spotted the robust figures wearing helmets and shoulder pads wandering round the stands, worried whether such protection was really necessary for the average Show-goer. In fact, the bulky bodies were promoting the new *American Football* game from **Mind Games**, available on the Commodore 64 for £9.99. Mind Games claims it's almost as exciting as the real thing – enough said.

CRL also announced some sporty titles (Spectrum conversions) for the 64. *Cricket 64*, *Handicap Golf*, *Showjumping* and *Derby Day*, all selling for £7.99. If those are too energetic for you, **CDS** is launching its new *Steve Davis Snooker* game (£7.95), also for the 64, featuring on the insert card the aforementioned potter squinting down the table. Funnily enough, the ubiquitous Steve guested at Vision's Snooker game launch last year – and wouldn't lend his name to the title.

Playing to win

Whilst Haresoft continues to plug its 'Masquerade' game (jewelled hare or £30,000 for the winner), other software houses are beginning to throw largesse at the dedicated Adventurer. **Domark** has launched not only a megagame containing five adventures and five arcade games, called *Eureka* (£14.95 on the Commodore 64), but it is offering a £25,000 prize for the first person to solve a mystery that spans from the Roman Empire to present-day espionage. By the way, what you're looking for is a phone number.

A burly security guard at Domark's stand fixed his gaze solidly on a display cabinet containing stacks of fivers. No such precautions on **The Edge** stand. That company is offering the sceptre from its new *Quo Vadis* 1,000 screen megagame for the Commodore 64 as a prize for the first solution. That lump of gold and crystal is said to be worth £10,000.

But you don't have to be an adventurer to get on the bigish winnings. **Martech** is offering five BMX bikes as 1st prizes in its *Eddie Kidd Jump Challenge* game. Apparently, you save your highest score on to tape and send it to Martech. Meanwhile, Eddie himself featured on Martech's stand, posing languidly for photographs.

Teach yourself

Another avenue software houses are eagerly exploring is education, and the idea that learning can be fun – if you're using a computer. But most of the titles on display amounted to Spectrum conversions.

New software house **Hill MacGibbon**, for example, exhibiting its ware under the banner, "games to stretch the mind", released Commodore 64 versions of Spectrum packages that appeared some time ago from Heinemann (both Mr Hill and Mr MacGibbon are former Heinemann men). Titles include *Ballooning*, *Punctuation Pete*, *Car Journey* and *Special Agent*. They cost £9.95 each and include a well produced and colourful pamphlet.

Similar Spectrum-Commodore conversions came from **Argus** with its *Clever Clogs* early learning series, and from **Ebury Software** with its *Mr T* range for 4-7 year olds.

Cult following

Followers of **Llamasoft's** Jeff Minter or more accurately, of the weird subjects of his games, will be pleased to hear about his latest creation to be launched at the Show. It's called *The Ancipital* (£7.50), the aforementioned being half humanoid, half goat. The game is an arcade/adventure in which you plough through 100 screens, collecting camels and goats. And Jeff's cryptic comment on it? "It's an adventure for blast 'em up addicts who hate adventures."

For those of you who swoon over neither genre and who'd prefer to create their own games, **Mirrorsoft** was showing its new *Games Creator* package for the Commodore 64 (£12.95 on tape, £15.95 on disk). According to Mirrorsoft's blurb, it's "all you need to create and play your own unique games", without needing programming skills. Three games are included in the package to show you what can (and can't) be done. We'll be reviewing it next month.

Similar claims were being made by **Activision** for its new *Designer's Pencil* program also for the Commodore 64 - "draw the world and everything that's in it" it enthuses. The Designer's Pencil lets you create hi-res graphics and music without resort to traditional programming, using a joystick. It costs £11.99 on tape and £19.99 on disk.

For those of you who thought the games software industry was facing a recession, the PCW show may have proved you wrong. After a pretty lousy summer, software houses displayed yet another bumper crop, ready to make the cash registers ring out for Christmas. But what was showing amounted more to gimmicks than real innovation – rather like sticking an extra layer of icing on last year's cake.

You bought a computer to cultivate your child's mind.

Make sure it's bearing fruit, not growing vegetables.

When it comes to developing a child's learning skills the computer s potential is endless

Unfortunately, the search fot software that makes the most of that potential has been endless too

That is until Spinnaker created their remarkable Learning Tree Series, a unique software range that introduces the one thing missing from most educational programs – fun!

At Spinnaker educators and games programmers write our software

It s a team effort that uses the understanding of how a child learns in a 'fun' way that makes children simply forget they're learning at all

So successful is the Spinnaker formula that worldwide more parents buy more Spinnaker programs than any other home educational software.

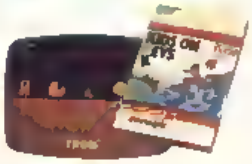
And now, here in Britain, Spinnaker comes to the rescue of parents saddened by the mindless 'shoot to kill' software syllabus.

If you're looking for software that truly cultivates young minds look out for Spinnaker Learning Tree Series

We're proud to say Spinnaker is one software house actually giving computer games a good name.

KINDERCOMP
is a collection of six fun learning games that help young children to improve their reading readiness and counting skills as well as familiarising them with the keyboard.

MAKE-A-FACE
is a fun way for children to become comfortable with computer fundamentals such as menus, cursors, the return key the space bar, simple programs, and graphics, and helps improve a child s memory and concentration

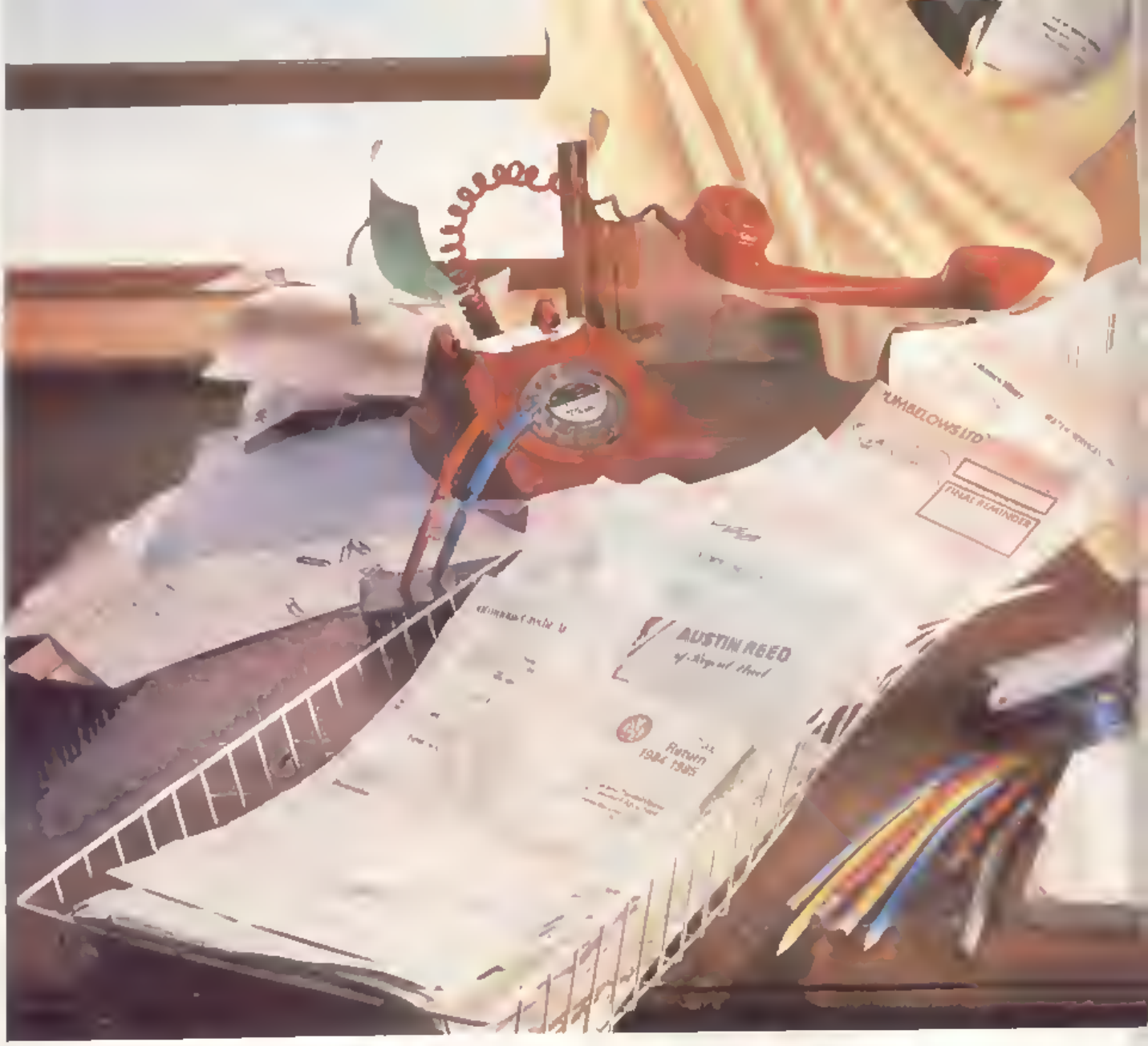


KIDS ON KEYS
Three exciting games that familiarise children with the computer keyboard as they learn to identify numbers, letters and words and associate them with images they see on the screen

Available from selected W H Smith, Claude Gill, Blackwells and all good software outlets. Most Spinnaker software is available for Commodore 64, Sinclair Spectrum 48K, Acorn Electron and BBC B micros

For further information contact Susan Hough,
W H S Distributors, St John s House, East Street, Leicester LE1 6NE Telephone (0533) 551196

SPINNAKER™
We make learning fun



Clean up your stu

Do you have almost as much paperwork at home as you do at the office?

Is your household budgeting system beginning to assume the complexity of the National Debt? And your filing system now so chaotic that you need another filing system to find anything in it?

Are you a club secretary or member of the PTA drowning beneath a deluge of subscription reminder letters and invitations for sponsored walks?

The answer is the new Commodore Plus/4, the computer specially designed for the office at home.

It has the four most commonly used (and useful) software programs actually built into the computer.

Just touch a key and they're all ready to clean up.

There's an information storage and retrieval filing system (Database), word processing for letter

FOR FURTHER INFORMATION ON THE COMMODORE PLUS/4 COMPUTER ITS COMPLETE RANGE OF PERIPHERALS PLUS GAMES AND EDUCATIONAL SOFTWARE PLEASE

dy once and for all.

and report writing, a financial analysis program to help you control your budget (Spreadsheet), and a graphics program to translate complex figures into easy-to-understand graphs.

Once your study is spick and span, then you can take advantage of the Plus/4's other features.

These include the use of advanced BASIC (a more sophisticated, yet simpler form of BASIC), a unique Help key so you can quickly identify programming errors, a large 64K memory (with an astonishing 60K available for use), and a real typewriter keyboard.

And all of that is yours for just £299.99. A small price to pay for cleaning up your study.

The Plus /4

commodore

WRITE TO OR TELEPHONE THE COMMODORE INFORMATION CENTRE 1 HUNTERS ROAD WELDON CORBY NORTHAMPTON NN17 1QX TEL CORBY (0536) 205252

TWO GREAT NEW CHART CLIMBERS from Calisto Software

COMMODORE 64

WARLOK

Some time in the far future, the Colonial Union is crumbling and the planets Warlok and Aldair are on the brink of war.

Returning from a mediation conference, an Aldarrian starship is attacked and boarded by the Imperial troops of WARLOK. Four [illegible] containing top security information on the Aldarrian [illegible] defences, are discovered on board the starship and [illegible] to WARLOK where, for interrogation and security [illegible] are each placed at the heart of a heavily fortified [illegible] defence network.

[illegible] the space fighter commander of the Aldarrian [illegible] the network and recover the robot [illegible] discover the drones' access code [illegible]

COMMODORE 64

HOOPER

From the darke[illegible] Prince among[illegible] his exagger[illegible] greatness [illegible] sets off [illegible]

In [illegible]

Both programs £7.95 in your high street. If in difficulty contact us direct.

Access and Barclaycard welcome

Calisto Software

DEALER & DISTRIBUTOR

Registered Wal[illegible]

119, JOHN BRIGHT STREET, BIRMINGHAM B1 1BL

Telephone: 021-643 5102

[illegible]

Soft option for the Plus/4

The Commodore Plus/4's built-in software reviewed

by Karl Dallas

Last month, Karl Dallas took a preliminary look at Commodore's new Plus/4 computer. He concluded that its success would stand or fall by the power of its integrated ROM-based business software. And those facilities will inevitably bring it into head-on competition with the Sinclair QL. This month, he puts the Plus/4's built-in wordprocessor, file manager, spreadsheet and graphics packages through their paces. How did they fare under his scrutiny?

Getting into the Plus/4's integrated software is quite a simple process. When you turn on the machine, the power-up message reads.

Commodore Basic V 3.5 60671 bytes free
3-Plus-4 on key F1

By pressing F1, the line appears under the title message. **SYS 1525: 3-PLUS-1** and then after you've hit the Return key, you're very quickly into the word processor.

This is the front end of the system in more ways than one, for all printing takes place via the WP module, though to change the colour of the screen display (you'll need to, because it comes up in a rather glaring white on black as a default setting), you have to go to the spreadsheet.

Movement between the software modules is achieved by pressing the 'CBM' and 'C' keys simultaneously. That's followed by TC (To Calculator) to get to the spreadsheet, TF (To File manager) to get to the database, or TW (you guessed it, To Word-processor) to return to the word processor. Graphics (such as they are) can only be accessed via the spreadsheet, because they're basically a subset of the spreadsheet commands. It's all pretty logical, really.

Movement is virtually instantaneous, and what's more, if you leave word processing to check some data via the file manager, the text you were writing is still there when you go back, though the reverse is not true: File Manager has to access disk to get back the record you were looking at.

It is possible to split the screen between the word processor and spreadsheet, so that you can check one against the other, and there's a BLKMAP command that will move whole chunks of the spreadsheet into the WP area for printing. Such blocks can, of course, then be edited and manipulated using the normal WP commands.

This is also true of the graphics facility, which displays a fairly low-res barchart made up of hash signs in the WP area (more about that later). But using the search-and replace facility in the WP package, you can substitute an asterisk, say, or indeed any character you like. It's also possible to blank out all but the top character in each bar, replace the top hash with a dot, and get a point graph.

The Word Processor

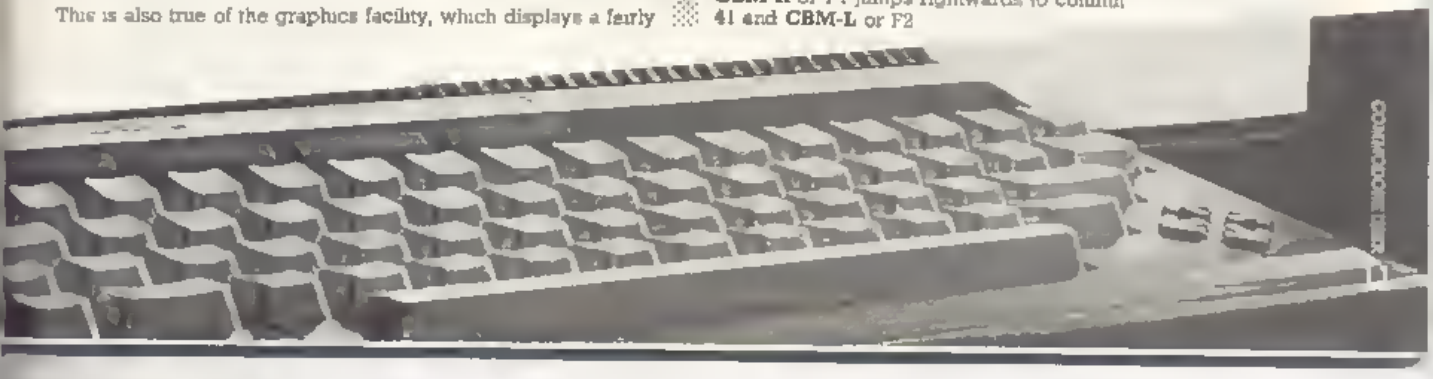
The word processor is post-formatted, which means that what you see on the screen is definitely not what you get when you print out the result. Words are split between the end of one line on screen and the beginning of the next. And that may put off some users. I'm a post-formatted man, myself, and when I'm given the option I always turn off screen word-wrap for extra speed in typing.

The VDU screen format is fixed, however, at 77 characters wide by 99 lines deep, with a 37 x 22 window scrolling across and down. This is a more serious liability, to my mind, because it can be difficult to keep the entire lines in one's mind as you're typing. On top of that, there is no view-to-screen facility so you can't see what your text will look like when printed.

Still, 77 times 99 is a reasonable amount of text memory, but not as good as the popular Commodore 64 programs which allow four or five times as much: at 7623 characters (about two pages of solid A4 typing), it invites comparison with Easyscript's 30,560, or Wordcraft 40's 26,623. That speaks for itself.

It has all the usual commands plus two valuable ones. **CBM-(a** will reinstate text removed by accidentally hitting Return (a common mistake I'm still making, after nearly five years of word processing). And **CBM-Q** will repeat a previous keystroke.

In addition to the obvious cursor and other editing controls, **CBM-R** or F1 jumps rightwards to column 41 and **CBM-L** or F2



INTERPOD

Now the VIC 20 and 64 can communicate with PET peripherals

£59·95

Cheetah Marketing

Cheetah Marketing Ltd, 24 Ray Street, London EC1R 3DJ. Tel. 01 833 4909 Telex. 8954958.

moves to the left margin, something I have to type SHIFT, RETURN and CURSOR UP to achieve on my rather more expensive word processor. Tabs are set with **CTRL**= and tabbed to with **SHIFT**= which is also the tab clear command. So that if you want to get to the second tab, you might erase the first instead. I can't understand why neither the Commodore 64 nor the Plus-4 came with a dedicated TAB key!

Format, block and search

Formatting instructions are begun with **CTRL 9**, which sets them into reverse video, and terminated with **CTRL/0** which turns off the reverse.

Blocks may be identified and moved or deleted, but only if they are no longer than 16 screen lines. Files may be SAVEd, LOADed or MERGEd. There is no block save for SAVEing part of a document. A document may be printed from disk without losing the document in memory. What happens is that the document in memory is automatically SAVEd to disk with the name 'workspace' after the PR command so that the new document can be LOADed and PRINTed, after which the original is reLOADed. There is no true print-from-disk (background print, as it's sometimes called).

Search and search-and-replace is not automatic, the user is asked each time the search string is found if it should be replaced, and if the search should continue. Some WP programs do this automatically. Best is a program that gives you the option to turn auto-replace on or off. And the **CA** command will print a disk directory without affecting the document in memory.

Printing it out

Since the WP module is also used for printing out spreadsheets, there is a facility for turning off word-wrap on print-out, to prevent the end of one spreadsheet line linking up with the beginning of the next as one word.

There is an **OTHER** command for sending standard ASCII (rather than Commodore ASCII), and ASCII printer control characters, bold or enhanced text for instance can be sent.

Page numbers are printed only at the bottom of the page and any number of linked files may be printed. This is not even limited by the space on the disk, since a pause could be inserted to allow for disks to be changed. There is no provision for a prompt message to be displayed, explaining the action to be taken. The **PAGEPAUSE** command pauses the printing at the end of each page. Continuous printing is the default setting.

If no formatting instructions are specified, the program prints with a default setting of left margin at 0, right margin 77, page length 60 lines, paper length 66 lines, justification off and wrap on.

Surprisingly, there is no simple way of instructing the printer to employ double or triple-line spacing. It can be done with ASCII control characters, of course, but this will also require adjustment of the page length command, and anyway, not all printers accept ASCII control codes.

Anyone new to word processing would probably find the very possibility of things like search-and-replace miraculous, but there's no way anyone would upgrade from a Commodore 64 with Easyscript, say, to the Plus/4 on the basis of this software. I imagine that even a first-time WP-user would soon realise that other things ought to be possible.

It might have been a good idea to have given the user some say in how the memory was partitioned, with an option to dedicate it all to WP, or WP/spreadsheet 50 50, etc. Presumably the new versions of familiar software being written for the Plus-4 will take advantage of the extra text possibilities – but of course they'll be an extra cost, for something being touted as complete in itself.

When one considers that the Plus/4 ostensibly has almost twice the user memory of the Commodore 64, and none of this is presumably taken up by the software, then the limited text memory is hard to understand, although of course it does have to be shared between the other programs. The ROM-based "View" WP program for the 32k BBC edcro, for instance, offers the user 24,560 characters. Nevertheless, given the above caveats, the PR module is still quite powerful.

The Spreadsheet

From here it's all downhill, I'm afraid, because the word processor is the best of the four integral software modules available on the Plus 4. Not that the spreadsheet is no good, it's very fair; just that there are already more powerful programs available for the Commodore 64.

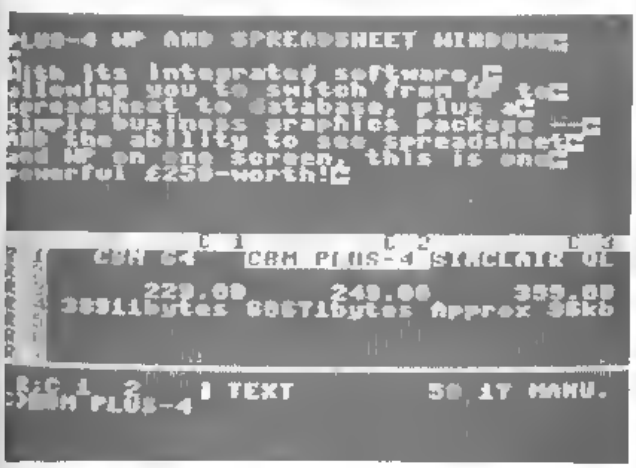
Again, memory is limited, but not drastically so. 50 rows x 17 columns, or a total of 850 cells, which would probably be enough for the average application. But the 2000 cells available on Practicalc for the humble 1K Vic shows it up somewhat. Because the column width is set at an unmodifiable 11 characters, this means that only three columns can be seen on the screen at a time.

Of course, the contents of a cell are not limited to 11 characters, but that's all that's displayed. Cell memory contents are limited to 36 characters.

Movement about the screen is rather awkward because the left and right cursors are used for moving inside the cell for editing. So movement to the left and right cell is by F1 and F2. But movement down and up still uses the cursor keys. Furthermore, it's not possible to enter text or a value into a cell by just moving to the next as with most spreadsheets, you have to press Return first.

Formulae are calculated using a strict left to-right priority, so you can't assume that the normal Commodore priority rules of multiplication or division before subtraction or addition apply. For example 4-2*10 will give you 20, not -16. Brackets are not supported, so it's necessary to break complex formulae into simpler commands, spread over more than one cell.

Commands cannot be entered with a single-letter keystroke in most cases. Nor is there any kind of menu of options normally offered by most spreadsheets. However the fact that commands may be up to six characters long allows the system to accept **FORMAT** or **FRE**. The latter 'freezes' a cell to protect it, (the opposite is **THAW**, of course!)



Plus 4 WP and spreadsheet windows

Splitting the screen

Undoubtedly the thing that will attract many users to the Three-Plus-1 software is the ability to split the screen between WP and spreadsheet, and it's really quite easy.

In the middle of word processing, the command **CBM-C** followed by **TC** will bring the spreadsheet to the screen, and files can be LOADed in with the same **CBM-C LF** command that's used in the other programs. Then, **CBM-C HA** will split the screen, and if you move back to WP with **CBM-C TW**, two can be viewed at the same time. The screen split can be unsplit from within the spreadsheet with **CBM-C FU**

Data can be transferred from spreadsheet to WP with the **CBM-C MAP** command, after first positioning the spreadsheet cursor at the beginning of the data to be MAPped. Then, movement of the cursor up, down, left or right will copy the same data into your word processing text. If half-screen is in operation, this can be observed. Incidentally, all 36 characters of each cell will be MAPped in this way. After copying, the data can be edited using all the WP commands, since it is just text to the WP.

This seems to me to be the best way to print from the spreadsheet, since the **BLKMAP** printing command only transfers a maximum of 7 x 50 column/rows, and only the first 11 characters in each cell.

IFTRUE is a sort of IF...THEN command, which can also be used to modify the normal order of calculation, changing the contents of an earlier cell as a result of something found in a later cell (a dangerous proceeding, to be used with care, since circular calculations can result).

The equivalent here of '<>' (not equal to) is NTE. The program also supports NOT, but none of the other logical operators, like AND or OR.

In short, this is a simple yet effective spreadsheet, with a remarkable IFTRUE condition which not all spreadsheets have. But there are a few limitations, for example, column widths are fixed at eleven characters. And that may soon have the experienced user fretting. Definitely for the beginner only.

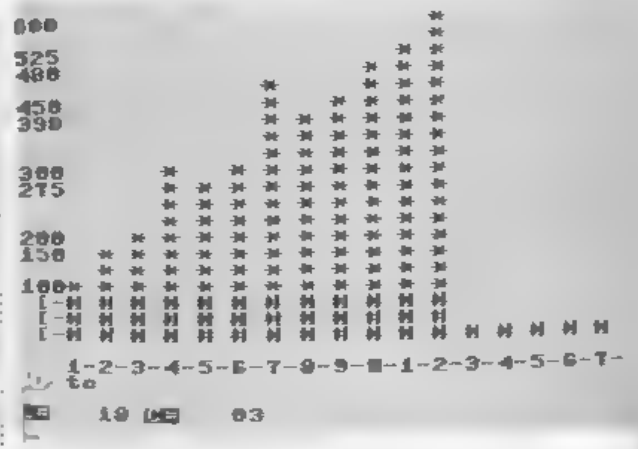
The Graphics

To call this a business graphics program is really something of an exaggeration. Most spreadsheets allow you to substitute a graphics character, usually '*', for integer values in the cells, though only one or two can cope with the difference between 2 and 2.5.

To produce a barchart of cell values, they must be arranged in rows, and must first be MAPped to the WP. Then the command **CBM-C GR** will change the WP values to columns of hash-marks. There are always a maximum of 20 vertical units, each with a value of 30. Again, since the barchart is now part of the WP document, it can be labelled or modified in any way required. But one wonders why they bothered with this so-called graphics option.

The File Manager

They were quite right not to call this a database, because it's not, even employing the rather loose terminology that has grown up in micro circles.



Plus/4 barchart graphics

It can handle records of not more than 17 fields, with a maximum of 38 characters per field, and a maximum of 999 records per file. For £16.95 a simple tape-based program like Beaver's Infotape will offer you records nearly five times as long, with all sorts of calculator and other facilities as well.

There is also no facility to design special screens for inputting or retrieving data, and since the field names are not displayed when records are retrieved, it's not always obvious what the data shown applies to.

Each record entered is numbered, and can be accessed by that number with the **CBM-C RCn**, command, where 'n' is the number of the record wanted. It is also possible to review the entire data file with the **CBM-C RVo**, command, where 'n' is the number at which the review should start. Records are displayed very quickly and may be stopped with S, with display resuming after the key is released. Letter **Q** abandons the review.

A search can be performed for a specific search string anywhere in the record. The program does not distinguish between capitals and lower case, and the search parameter must be confined to one field. So if surname and first name are in different fields, only one or the other can be accessed. For example, the search string SM will turn up Smith, Smithson, Smythe, or even Jasmine.

Sorting can be performed on up to three fields, and it's possible, using the WP, to print out reports, labels and suchlike, either from the complete file or selectively.

For small organisations, tennis clubs and the like, or very small businesses, the file manager would be a useful little utility - with the emphasis on that word little.

Conclusions

If I was more certain of the market this machine and its software was aimed at – or if I was more convinced Commodore had a clear idea of it – I might be able to attempt a better judgement of the Plus 4's potential. As I said last month, it's generally a nice and compact machine, but if its success depends on the power of this software, then I wouldn't fancy its chances of becoming a classic.

REWRITE HISTORY THIS WEEKEND!

All action strategy games from SSI- -the world's No.1 war game company

64 ATARI

Spectrum versions available soon!

At last here is your chance to see how you shape up as a General in a real battle! The pages of history record the triumphs and failures as Eisenhower, Montgomery, Rommel and Von Rundstedt battled in Europe and North Africa. But with a clear thinking strategist like yourself in command perhaps the historians would have had a different story to write!

U.S. Gold is proud to present four of the best strategy games by Strategic Simulations Incorporated.

KNIGHTS OF THE DESERT pitches the British Forces of Montgomery against the might of Rommel and his Panzer Divisions in the classic North African campaign of 1941.

BATTLE FOR NORMANDY commences on 'D-Day' June 6th 1944 and relives the Allied Forces attempt to smash Hitler's Atlantic Wall.

TIGERS IN THE SNOW reconstructs the legendary Battle of the Bulge as in December 1944 the Panzer Divisions of Von Rundstedt try one last gamble in a desperate attempt to halt Eisenhower's advancing Allied lines.

Who will be the victor and who the vanquished?

Only you have the answers!

And if you're looking for strategy with arcade action then COMBAT LEADER will test all your wits, depth of thought and reflexes in this toughest of battle challenges!

£14.95
disk & cassette

THE ULTIMATE IN AMERICAN SOFTWARE FOR YOU ON U.S. GOLD

U.S. Gold is stocked by all leading computer stores including:

BOOTS WHSMITH JOHN MENZIES WILDINGS WOOLWORTH

U.S. GOLD All American Software

DEALERS! For information on how to become a U.S. Gold Stockist write to: CentreSoft Ltd., Unit 10 The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. 021-359 3020.

SSI

STRATEGIC SIMULATIONS INC

Project

Control your home with your Vic or 64

by Chris Durham

Part three – control without wires

In the third part of our series we take a look at ways of controlling devices without using connecting wires. Chris Durham tries out a commercial control system that uses the house mains to send its signals and also investigates the wonderful world of ultrasonics and infra-red transmission.

So far in the series I've concentrated on ways of sending a low voltage signal to our mains interface along a wire. This of course means a lot of rewiring of your house if you want to do more than just control a device in the same room as the computer. Also, there are those who might like to control something mobile (a robot butler, perhaps), for which an 'umbilical' cable attachment is hardly suitable. So what is available that will allow us to control devices without any direct attachment between the computer and the device being controlled?

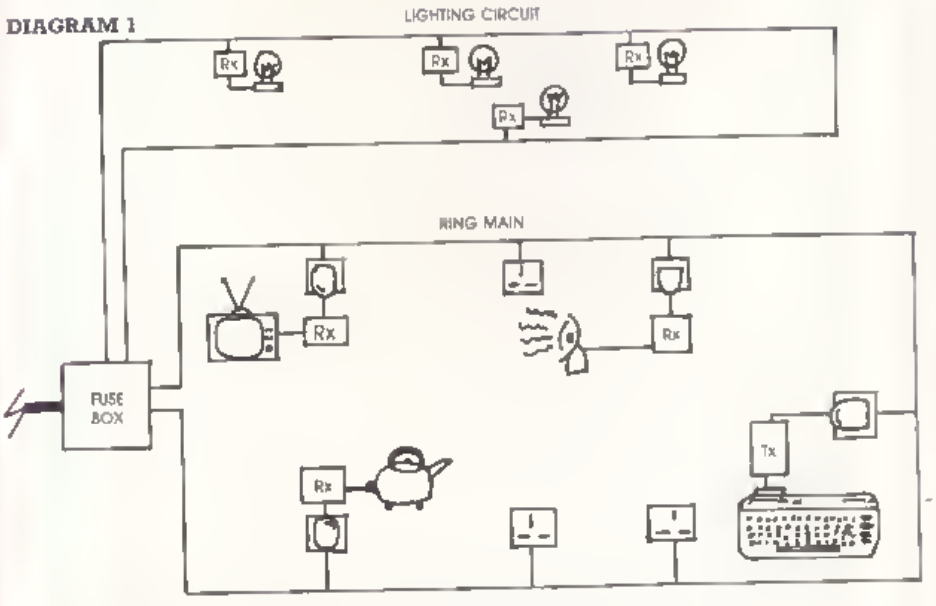
Mains-borne remote control

If you think about it for a moment you'll realise that there is already a system of wires going to every single electrical device in the house, the mains wiring. Obviously we cannot just connect our 5v signal to the mains, the result would be a rather blackened and melted computer for a start.

What we can do, however, is to transmit a high-frequency signal into the mains wiring and then filter off that signal at the other end with a suitable receiver (Diagram 1). This is the basis of a commercially available kit from **TK Electronics**. It is sold as a *'Home Control Centre'* and can be used with or without a computer.

You require one transmitter plus as many receivers as there are devices to be controlled, the normal limit is 16, but this can be fairly easily extended to 64 when used with a computer. In fact,

DIAGRAM 1



(Tx = Transmitter Rx = Receiver)

Trollie Wallie
INTERCEPTOR SOFTWARE
ONLY £7.00 ON CASSETTE £9.00 ON DISK
AVAILABLE NOW FROM ALL GOOD COMPUTER RETAILERS

Make new friends,

Like Dr. Frankenstein, you can now create your very own monsters and aliens. As well as friends and heroes to defeat them.

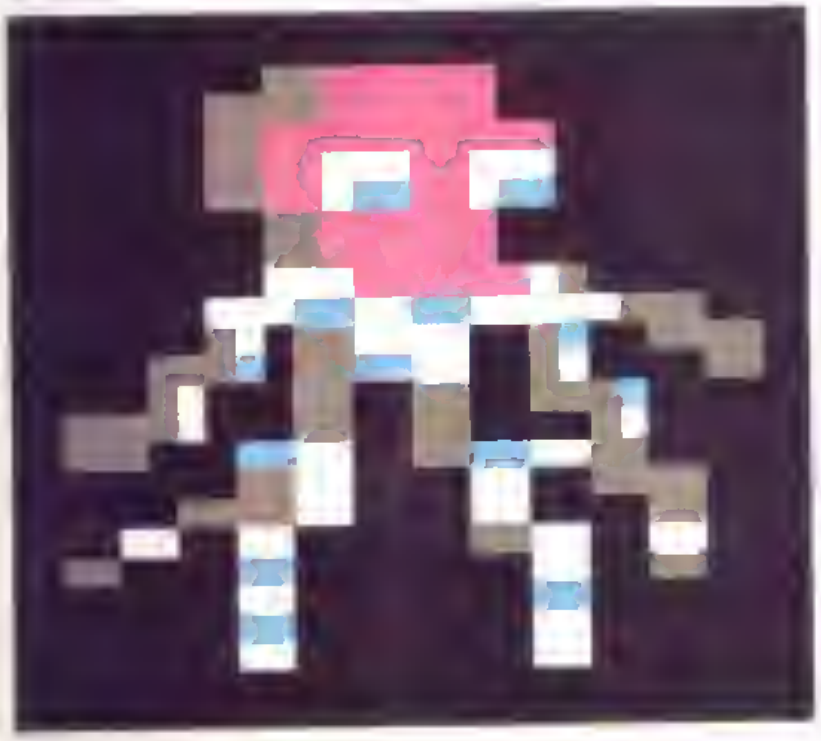
You can also invent your own games. As simple or as complex as you care to make them. The only real limit is your imagination.

GAMES CREATOR

For the CBM64 the Games Creator comes with a step-by-step manual and three ready-to-play games. Each demonstrates some of the program's exceptional features: shapes, movement, speed, scrolling backgrounds, scoring, music, sound effects and many more.

And you don't have to know any program language to work it! There's only one thing better than playing games. And that's inventing them. £12.95

and enemies.



GO-SPRITE

A versatile, easy to-use sprite designer and tester which makes full use of the facilities on the Commodore 64. *Go-Sprite* gives you:

- ease of use with icon driven commands
- simple animation of 32 sprites, with 255 frames
- easy handling of multi-coloured sprites
- overlays of up to seven layers.

User-friendly *Go-Sprite* can be operated almost entirely by joystick alone. Lightpen and keyboard control options also included. Speedy loading program. £9.95

MIRRORSOFT

SOFTWARE FOR ALL THE FAMILY

Available from Boots, W H. Smith, Spectrum and all good software stockists. Write for a free catalogue to Mirrorsoft, Holborn Circus, London, EC1P 1DQ.

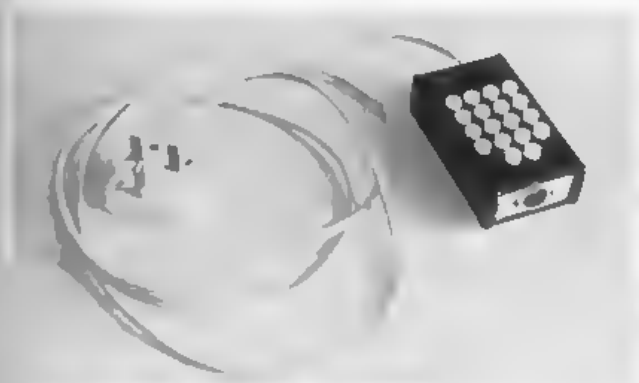


Photo 1 – the transmitter and mains controller

with additional decoding circuitry it is theoretically possible to control up to 256 individual circuits. Both the transmitter and the receivers are in kit form, there are no versions available ready built. What you get for your £49 is one **Tx** (transmitter) and two **Rx** (receiver) kits.

Building the Transmitter

You get everything you need to build the stand alone version of the transmitter including the case, but they don't include the five 680Ω resistors needed for the computer interface. This is because they say different values are needed for different machines. You'll also have to make up a cable with a 5-pin DIN plug and a User-port connector.

It took me about two and a half hours to build the transmitter including filing down the switches which are a rather tight fit on the PCB. Fitting the unit into the case however, took the best part of another hour! The case is only just big enough and could really have done with being bigger. If you don't get the fit exactly right you can short out components or jam the switches.

I eventually fitted a rubber grommet in the hole for the mains cable and this allowed the board to be positioned with the case closed and then kept there otherwise any small movement of the cable caused the switches to jam, the unit is not secured in the case in any way. If you were not intending to use the manual keypad at all, it would be possible to leave off the keyboard and fit the unit in a totally different box.

The components were all listed in the instructions, but since there is no resistor colour code included, a beginner might have problems identifying which one is which. Actual construction is straightforward for anyone with previous experience of building kits, but again, beginners might have a few problems since everything is so tightly packed together. The keyboard is on a separate PCB which is mounted above the components PCB by soldering wires between the two boards.

Building the Receiver

This is slightly easier than the transmitter for two reasons, there is only a single PCB and you can fit it into any case you wish, since one is not provided. This is because it is possible to fit the receiver inside the device to be controlled if so desired. I chose a different method which is to mount it inside a 'plug box' which plugs straight into the mains socket.

As with the transmitter, the components are all listed and the instructions are fairly detailed, there are one or two silly mistakes however which are rather confusing. For example, the Light Emitting Diode (LED) is marked as **D3** on the diagram, but **CQY40** on the components list, while the symbol on the diagram is incorrect! There is also a warning given about CMOS devices, yet they are packed in non-conducting foam (normally CMOS devices are stored with all pins at the same potential). Actual construction time was just over an hour once the components had all been identified and laid out.

Photo 2 – the Receiver kit before construction

Testing the units

You need a multimeter for this since you have to adjust a transformer core on the receiver for maximum deflection on the meter. Although the instructions are clear, they do not give any indication of the size of the deflection; I could only obtain a maximum of about 0.8v and when the unit did not work as I expected I was unable to tell whether this reading was 'good' or not. I eventually had to resort to using an oscilloscope to find the fault, which is not an option available to many hobby constructors. The normal testing procedure is fairly easy provided you have done everything correctly. If all else fails you can ring up the suppliers who are very helpful, they will even repair a unit which

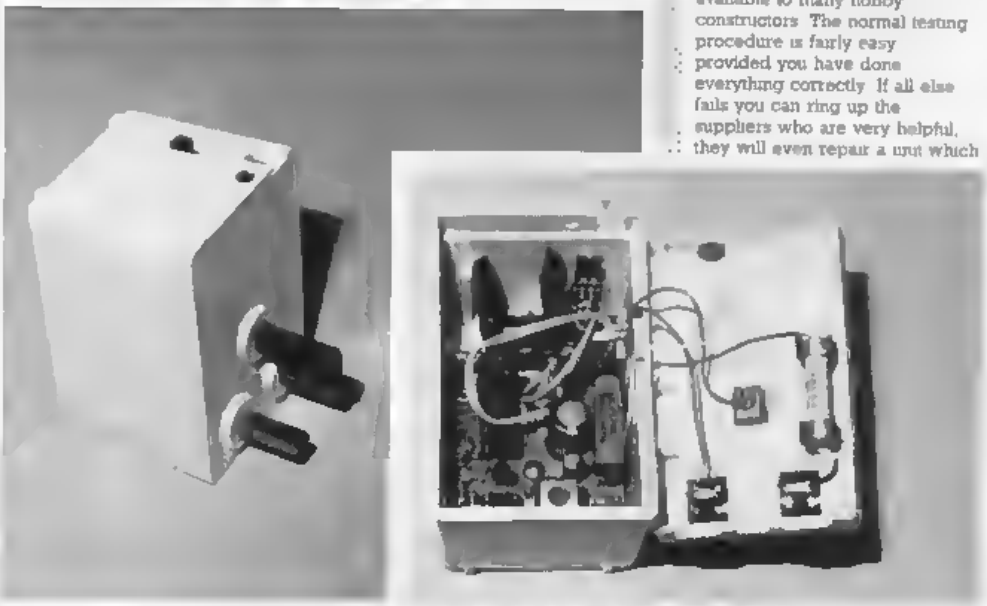


Photo 3 – mains plug-box with Receiver unit installed

THE 64 SOFTWARE CENTRE
1 Princeton Street, London WC1
01-430 0954

Business accounts

Sales Ledger (Anagram) d	75.00
Purchase Ledger (Anagram) d	75.00
Sales Ledger (Ramtop) t	14.50
Purchase Ledger (Ramtop) t	14.50
Accounts package (Ramtop) d,t	115.00
Cashbook (Microsimplex) d	172.50
Cashbook (Gemini) d	64.95
Cashbook (Gemini) t	59.95
Final Accounts (Gemini) d	64.95
Final Accounts (Gemini) t	59.95
Inventory 64 (MMS) d	29.95
Future Finance (CBM) d	75.00
Stock Control (Gemini) d	24.95
Stock Control (Gemini) t	19.95

Home applications

Budgeteer (Adamsoft) t	8.95
Checkbook Manager (Adamsoft) d	14.95
Home Accounts (Gemini) d	24.95
Home Accounts (Gemini) t	19.95
Home Office (Audiogenic) t	14.95
Home Accounts (Fieldmaster) d	29.95

Database systems

Magpie 64 (Audiogenic) d	99.95
Mailpro 64 (Kobra) d	79.35
Oracle 64 (Kobra) d	113.85
Practifile 64 (MMS) d	44.50
Simply File 64 (Simple) d	60.00
Superbase 64 (Precision) d	99.95
Figaro 64 (Saxon) d	86.25

Spreadsheets

Busicalc (Supersoft) d,t	17.95
Busicalc II (Supersoft) d	61.65
Calcresult Adv (Handic) d	99.00
Easy Calcresult (Handic) d	49.95
Multiplan 64 (Kobra) d	99.95
Practicalc 64 (MMS) d	44.50
Practicalc 64 (MMS) t	39.95
Multiplan (US) d	70.00

Programmers' Aids & Utilities

Acos+ (MH) t	8.95
Arrow (Supersoft) c	44.85
BC Basic (Kuma) c	57.50

d=disk t=tape c=cartridge

ALL IN STOCK NOW – Callers welcome
(10am – 6pm incl Saturdays)

Mail Order Cheque or PO – add £3 for items over £30, others free
Credit cards (Access/Visa) phone or write Immediate despatch

The 64 Software Centre,
1 Princeton Street, London WC1

Please supply the following items:

1 ..... Qty. ... @£ .....
2 ..... Qty ... @£ .....
3 ..... Qty. ... @£ .....
4 ..... Qty ... @£ .....

TOTAL £ .....
POSTAGE £ .....
TOTAL £ .....

Name ..... Address .....
Visa/Access Card No .....
Date ..... Signature .....

Chartpak 64 (Adamsoft) d	24.95
Chipmon (Mr Chip) t	12.50
Forth 64 (Audiogenic) c	29.95
Forth 64 Advanced (Hesware) c	50.00
Graphics Designer (Adamsoft) d	19.95
Graphix 64 (Supersoft) t	11.50
Logo (CBM) d	57.50
Master 64 (Supersoft) d	71.30
Mikro Assembler (Supersoft) c	59.80
Hesmon Monitor (HesWare) c	34.95
Pilot (CBM) d	75.00
Printlink 64 (Supersoft) t	32.20
Quickchart 64 (Adamsoft) t	6.95
Screen Graphics (Adamsoft) d	14.95
Simons Basic (CBM) c	47.50
Sprite Aid (Adamsoft) t	6.95
Stat 64 (Handic) c	29.95
Superdisk Utility (Adamsoft) d	12.50
Synthy 64 (Ademsoft) d	14.95
The Tool (Audiogenic) c	49.95
Turtle Graphics II (HesWare) c	50.00
Ultrabasic 64 (Adamsoft) d	24.95
Ultysynth (Quicksilva) t	14.95
Victree 64 (Supersoft) c	56.35
64 Doctor (MMS) d	19.95
Scope 64 (ISP) d	18.95
Scope 64 (ISP) t	17.95
Master Composer (Access) d	44.95

Word Processors

Heswriter (Hesware) c	34.95
Paperclip 64 (Kobra) d	98.90
Simply Write 64 (Simple) d	40.00
Simply Write 64 (Simple) t	35.00
Vizawrite 64 (Viza) d	79.95
Vizawrite 64 (Viza) c	69.95
Vizaspell 64 (Viza) d	59.95

Educational & Languages

Essential Italian (Dell) d	16.95
Essential Italian (Dell) t	14.95
Besieged (Sulis) t	9.95
Wordpower (Sulis) t	9.95
Time Traveller (Sulis) t	9.95
Just a Mot (Sulis) t	9.95
various subjects: Callisto, Collins, Commodore t	

War simulations

Battle for Normandy (SS) d	34.95
Knights of the Desert (SS) d	34.95
Eagles (SS) d	34.95
Combat Leader (SS) d	29.95
Tigers in the Snow (SS) d	34.95
Geopolitique (SS) d	39.95
Operation Whirlwind (Broderbund) d	34.95

Flight simulators

Flight Path 737 (Anirog) t	7.95
Flight Simulator (AP) t	9.95
Flight Simulator (IFR) d,t	24.50
Flight Simulator II (Sublogic) d	47.50
Solo Flight (US Gold) d,t	14.95
Heathrow (HC) t	7.95

Business Simulations

Commodities (Blue Chip) d	50.00
Stock Exchange (Blue Chip) d	50.00
Baron (Blue Chip) d	50.00

Games

A large assortment on disk, cassette and cartridge

Channel No.	Device
1	Lounge lights
2	Hall light
3	Landing light
4	Main bedroom light
5	2nd Bedroom light
6	3rd Bedroom light
7	Bathroom light
8	TV
9	Hi fi
10	Reading lamp
11	Radio
12	Kettle
13	Toaster
14	Washing machine
15	Microwave or cooker
16	spare

Table 1

hub to work, although you may have to pay extra for this

Using the units

The instructions indicate how the units work. Basically the transmitter sends a high frequency signal, which is coded to give 16 different combinations, along the mains wiring. This is picked up by all the receivers, who filter the signal off the mains. However, only the receiver whose address corresponds to the transmitted code will respond when the transmitter sends the next code which tells it whether to turn 'on' or 'off'.

Each receiver has four 'channels', but only one of these is used in the normal system, the user selects which channel is used by links on both the Tx and Rx PCBs. This is only a limitation on the manual system however and by using a computer on the transmitter and using all four outputs on each receiver it would be possible to drive 64 devices, the program coding would be a little more complicated, but not much.

To operate a device you must know the address of its receiver. With only one device per receiver it is just a question of POKEing that value into the User-port for up to two seconds, followed by the value 48 (binary 11000). Switching off is the same except that the second value is 32 (binary 10000). All 16 receivers can be operated totally independently and this should be more than adequate for the average house. **Table 1** shows the sort of control that could be achieved with a 16 receiver system. Since the mains wiring connects both the socket ring main and the lighting circuits the computer can be sited anywhere in the house, yet control any electrical device.

Applications

These are limited only by the imagination of the user, but an obvious one that springs to mind is making the house appear occupied when you are away. Lights can be turned on downstairs at the appropriate time, then later the landing light can be switched on, followed by the bedroom and bathroom, finally turning all lights off. You could even have the hi-fi going if you have a 'continuous play' cassette player. Some idle people might even use it to switch on their radio in the morning, boil the kettle, start cooking their boiled egg and turn on the toaster. Come to think of it, that's not a bad idea! But there are limits to this: the components, as supplied, will only handle about 1kW (a single bar electric fire). To operate higher rated devices such as kettles and cookers, you will need to purchase extra TRIACS and heatsinks of the appropriate rating.

Advantages

This system is neat, unobtrusive and can be used to control up to 64 devices with few additional components. The use of the mains to carry the signals means that no extra wiring is necessary around the house and receivers can be built-in to the devices they are controlling. The receivers can be packaged to suit the application.

Disadvantages

The system is not available ready built and is therefore not suitable for non-electronic hobbyists. Although the individual units may not seem that expensive, at around £12 for each additional receiver it would cost over £700 to implement a full 64 channel system. Even a modest 16 channel system would set you back over £200, assuming every single unit worked first time. However, where you can combine devices (house lighting for example) you may be able to combine channels on one receiver, thus reducing the cost.

Conclusions

This is an ideal system for someone who is handy with a soldering iron and who would like to bring his house into the age of 'computer control'. It is not particularly cheap, but then £200 might be considered by some to be money well spent on such a system. You can always start off with the basic kit at £49 and then increase the system a single receiver at a time. Do remember that it will tie up your computer totally and that you will have to make provision for power cuts and other possible disasters, all of which will push up the cost.

Ultrasonics – the mobile system

There are two types of system that can be used for control without using wires, infra red and ultrasonics. Similar principles apply to both, but ultrasonics are sound based while infra-red is light based. An ultrasonic system tends to have a wider range than the infra red because it is less directional. It can even work round corners if the conditions are right. An ultrasonic system works by sending out sound waves at about 40kHz, these are then modulated with a code. These modulated sound waves are picked up and decoded by the receiver. **Diagram 2** shows the basic components of such a system.

I originally intended to go into detail on building an ultrasonic transmitter and receiver. Unfortunately, there is one problem with all these types of system and that is setting them up correctly. While it is fairly easy if you have the right equipment, such as an oscilloscope, it is a little more difficult for the average hobbyist who has to make do with just a multimeter. Unless the system is set up correctly from the start the operation will tend to be erratic.

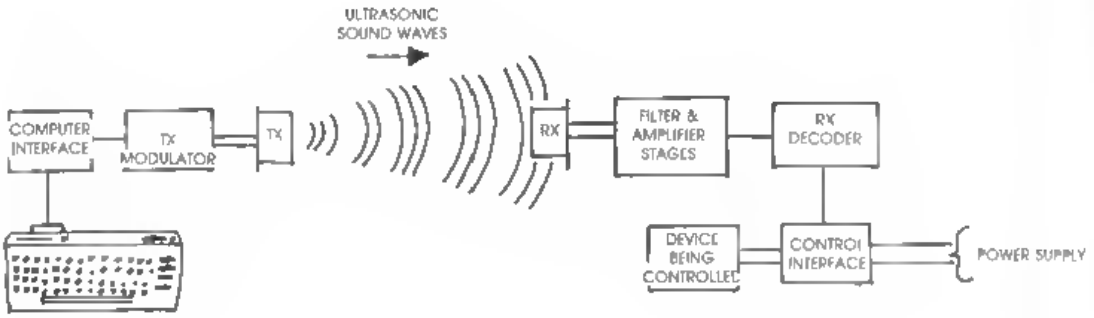


DIAGRAM 2

and the range will be considerably reduced. However, the project is not dead and should a simpler method of setting up be found, the details to enable such a system to be built may well be published as a separate article. In the meantime, anyone with the confidence or experience to go it alone can get a diagram of a typical receiver and transmitter layout by writing to **Commodore User**.

Applications of ultrasonics

For robotics control, it is possible to mount a transmitter and receiver at each end of the ultrasonic link to provide either full 32 channel working in both directions, using a master/slave protocol or 16 channel working with a different receiver at each end. This would enable quite sophisticated control since commands could be passed as control codes, followed by the distance or angle to move etc. Even simple commands like forward, stop, turn, could give an appearance of intelligent action if the robot were able to signal back if it hit an obstruction.

When used in a static environment the advantage of ultrasonics over a mains-borne system is that it can be used equally well with battery operated equipment. The transmitter circuit can also be powered from a 9v battery, allowing the devices to be operated from a hand-held control unit when the computer is not connected, in the same way as a TV remote control unit.

Commercial units

Despite the apparent proliferation of ultrasonic systems in most of the electronics magazines, there is a lack of ready made units for control purposes. There may be units available for burglar alarms, but these have a different function. They merely detect any change in the received signal to indicate movement or the presence of an additional object in the guarded zone. Unfortunately it is not easy to convert these as the devices do not have the means to modulate the signals in the way we want.

Some of the latest turtles to appear, such as the one from Valiant, now use remote control units, the Valiant turtle uses an infra-red controller that plugs into the User port on the Commodore 64. It may well be possible to convert that unit to control other devices in your home.

Drawbacks of ultrasonic systems

Because it relies on sound waves travelling through the air there are certain limitations to this type of system. Any obstruction between the transmitter and receiver may cause the link to fail, although at close range with a small obstruction there may not be a problem. Reflections from walls, for example, can sometimes increase the strength of the signal and sometimes reduce it. This is not likely to be a problem inside a room as ranges will be well within the maximum, but if used outside the effective range can vary considerably.

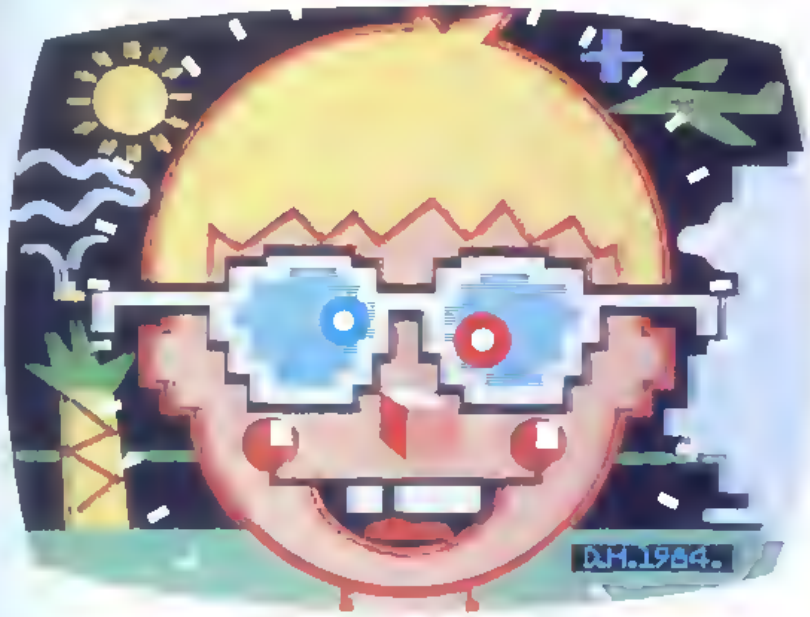
The maximum range of a typical domestic system will be about ten metres, depending on the conditions under which it is used and how well the Tx and Rx units have been set up.

One point to bear in mind if you're trying to control a mobile device: you need to have some method of knowing when the receiver is out of range. If you reserve one of the 32 codes as a confidence code, this can be transmitted once every second, for example. If the on board controller misses more than two consecutive confidence codes then it stops the device (or even better, reverses until it comes back into range!).

Feedback

So far in the series we have looked mainly at how the computer sends signals to a device under control. Next month we take a look at the design of a basic input board that will allow up to four input channels to return information to the computer. I will also be taking a closer look at VIC REL which has both input and output channels in one easy to use cartridge.

Item	Home Control Centre (One Tx and 2 Rx kits)
Contact address.	TK Electronics 11 Boston Road London W7 3SJ
Telephone·	01-567 8910
Cost·	£49.04 (incl P&P + VAT)



PICTURE YOURSELF ON T.V.

So you're hardly stumped for choice

You simply choose your colours and characters, then 'build up' your picture. Just like any other artist

With 'Art Master' you again get a choice of 121 colour shades.

But this time you can draw whatever shapes you like, creating your very own high resolution masterpiece from a blank screen.

It is even possible to draw circles, and store and then recall a back-up picture – which is more than you can do with other graphics programs.

Everyone, from the six year old right up to the 66 year old, will enjoy 'Art Master' and 'Picture Builder'

Like all of our software, they have been specifically designed to get the best out of Commodore hardware

That's why you can't choose better.

Commodore software it costs no more, even though there's more to it.

We're not the only people who think 'Art Master' and 'Picture Builder' are two quite exceptional computer graphics software programs

Tony and Rolf do, too. Otherwise they'd never have agreed to put their name to them.

commodore COMPUTER SOFTWARE

With both 'Art Master' and 'Picture Builder' you can create full colour pictures on your own T.V. screen.

And believe us when we say those pictures will match the best computer graphics you have ever seen.

Anywhere

The pictures are drawn using either the keyboard or a joystick, and can be stored on either tape or on disk

With 'Picture Builder' you are presented with a palette of 121 colour shades (more than enough for any budding Michaelangelo).

And a collection of character sets totalling over 250 shapes

PICTURE BUILDER ON CASSETTE ART MASTER ON CASSETTE OR DISK EACH £9.99

A professional synthesiser for your 64?

Musicalc reviewed

by Nick Pickett

Musicalc, from the American Waveform Corporation, was left out of last month's review of music-making programs for the Commodore 64 because it's the most powerful, versatile (and most expensive) package yet available for that machine; its sophisticated facilities require a more lingering look. It comes in three basic modules: a Sequencer and Synthesiser, a Scorewriter and a Keyboard Maker, together with a range of disks that provide preset rhythms. Nick Pickett, himself a dedicated computer musician, puts the complete package through its paces.

Musicalc is a series of disk based programs which set out to exploit the full sound generating possibilities of the Commodore 64. There are three basic modules: Musicalc 1 is the synthesiser and sequencer; it forms the basis of a system that can be expanded to include Musicalc 2 (Scorewriter) and Musicalc 3 (Keyboard Maker). UK prices for these are £49.99, £34.99 and £34.99 respectively. Musicalcs 2 and 3 will not work independently of Musicalc 1.

A fourth module, an actual music keyboard, should soon be available from the UK distributor, Musicalc UK, which is also converting Musicalc 1 into cartridge form. Three template disks are available too, which provide jazz-funk, West Indian, electro-pop and drum rhythms. These cost £19.99 each. For demonstration purposes, Musicalc UK is offering a Demo disk (£6) and a cassette (£3), the price of which is deducted from an eventual purchase. So let's load up Musicalc 1, the starting point for building the sound system.

Musicalc 1 - synthesiser and sequencer

Musicalc 1 is the heart of the system and provides a basis from which the other modules work. It comes with a well presented 72 page manual. On booting up the disk, a display panel appears on the screen which is divided up into two sections. On the left side is a display showing the current status of the sound synthesiser. On the right, there's a moving display of the music sequence in memory (picture 1).

A good initial feature of Musicalc is that it holds up to 32 music 'scores' and a file of short, preset demonstration scores which load automatically when you load the disk. So it's easy for you to dive straight in and experiment with sound set-ups on existing scores. The same goes for the manual: it begins by letting you do some easy experimenting without actually explaining what is going on - that comes later.

The synthesiser status display is quite comprehensive, showing on/off switches, 'slider' controls and the following parameters for each voice: waveform, ADSR (attack, decay, sustain, release), pulse width, filters and volume. You also get slider control over oscillator and envelope modulation, and the tempo.

Musicalc can hold up to 32 separate sounds at any time, which are loaded with the program so that you can hear them all immediately. You can set your own sounds up, of course, they can be easily saved to disk for future use.

Control over the switches and sliders on the synthesiser panel is really quite simple. You select switch control by pressing the left/right cursor key, and slider control by pressing the up/down cursor key. Then, you select the switch or slider you want to adjust by pressing the appropriate 'qwerty' key.

The manual gives clear instructions on locating and controlling each sound parameter, but it's easy to locate the slider or switch you want because it flashes when you press its control key. If you select a slider control, pressing the four Function keys gives you up and down movement in both steps and slides.

Sequence of notes

To build a sequence of musical notes, you must go to the second of Musicalc's three displays (press SHIFT/RETURN), that's called the Score Screen (picture 2). Musical data is entered in rows, the length of which can be specified by the user. The maximum length of a row is 16 steps and only one row appears on the screen at a time.

At the bottom of the screen, you select the octave from an eight-octave range. At the top, you select one of the twelve semi-tones of that octave. That's done simply by using some of the 64's keys, and you can hear immediately the pitch of each step selected. Notes can also be tied together using the space bar. For example, you could tie two crotchets to make a quaver.

Given that each step in composing requires both the note and its octave, entering

THE BEST SOFTWARE IN AGES

C-64 ☐ SPECTRUM ☐ BBC ☐ ELECTRON ☐

FANTASIA DIAMOND

Delve deep into the age of fantasy with a host of intriguing characters that may help or hinder your exploration of this dream world

Retrieve the magnificent Fantasia Diamond recently stolen and rescue Boris the master spy from the imposing fortress and its evil guardian. Talk to the Robot, Violinist and other characters to illicit their help

An enthralling and sophisticated graphic adventure by Kim Topley for the Spectrum 48K, Commodore 64, BBC Model B* and Acorn Electron*

SRP £7.95

*No graphics on these versions

HEATHROW ATC

Your challenge in the age of technology is to direct the incoming aircraft at the world's busiest international airport, Heathrow. Monitor the stack displays of altitude, heading, velocity and aircraft type. Scan the radar for blips and trails. Develop your skills to tackle emergencies, rogue aircraft, radio and instrument failure

A highly acclaimed simulation of one of today's most demanding jobs, by Mike Male for any Spectrum, Commodore 64, BBC Model B and Acorn Electron

SRP £7.95

3D LUNATTACK

Do battle with the Seiddab in a futuristic age. Pilot your 25 Hoverfighter over the craters and around the mountains of the luna landscape. Equipped with the latest iridium lazers, duodec missiles, radar navigation and shields penetrate the Seiddab defences and head towards their command base. Destroy the Seiddab Dab Tanks, Aerial Mines, missile silos and Hoverfighters, you must not fail in your mission to drive the Seiddab from their luna base. A stunning 3D Graphic Presentation by Steve Turner for the Spectrum 48K and Commodore 64

SRP £7.95

GSH

HEWSON CONSULTANTS

Hill Mitre, Trading Estate, Milton, Abingdon, Oxon OX14 4RX

As part of our continuing development of innovative software we are always happy to evaluate software sent to us with a view to publication

Selected items available from Centresoft Dealers and all leading computer software retailers

WHSMITH · Rumbelows · John Menzies · TIGER TRADER · Spectrum · LASKYS · HMV

Hago® Personal Computer Workstation.

At last you can get it all together.

ORDER NOW FOR CHRISTMAS

See your local dealer NOW! If unavailable order direct from Hago.

Whether you're operating from home, school or office, the Hago PCW (Ref B16) adds the professional touch to your computer layout. Handsome, sturdy, with a place for everything, the Hago PCW is the home every personal computer deserves.

ONLY £82.75

Keyboard worktop adjusts from 20¾" to 29¼" high

Shelf for disc drives, tape recorder printer etc.

Sturdy steel frame finished in chocolate brown with simulated teak worktop Mounted on castors for complete mobility

Overall size 31¼ d x 36¾ h x 22¼ w

Hago®

Hago Products Limited, Shripney Road, Bognor Regis, West Sussex. Tel: (0243) 863131

Please send me ____ (qty) Hago (R816) workstations at £82.75 each inc. P&P.
I enclose my cheque for £ _____
or debit my Access/Visa*Account No [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
Name (Block Capitals) _____
Address _____
Signature _____ * Please delete as applicable

notes can be time consuming It took me over a minute to enter a C major scale running up and down in 16 semi-quaver steps. Entering a tune, followed by the maximum of three part harmony or counterpoint involves hours rather than minutes Perhaps I'll get better with practice

Playing the piano

Musicalc 1 also turns your Commodore 64 keyboard into a sound keyboard. The manual claims the keys act like a piano. Not quite; when you press a key, the sound continues until you hit the space bar. Despite that, it does give you an alternative method of entering notes And you have a choice of three modes

The first mode lets you choose one of the three voices; so you can play along with any of the preset tunes. The Step Mode lets you correct any one step in the sequence whilst Record Mode records any key pressed into the current row It won't be the notes, though To make a crotchet from four quavers, you still have to go back to Sequence Mode and tie notes in the usual way This rather defeats the object of the facility. Rows can also be cleared by pressing the space bar as the voice cursor moves across it.

Musicalc 2 – the scorewriter

Musicalc 2 is a scorewriter program which turns the compositions you've created within Musicalc 1 into musical notation It can then be printed out on to paper as sheet music on a dot matrix printer Unfortunately at present your work must be printed to a Commodore 1525 or 1526 printer. Musicalc UK is working on a routine that will allow you to interface to a wider range of non-Commodore models.

The print facility can handle up to eight score pages at a time, and will print up to three voices on the stave And you can distinguish between the different voices on the screen by using different colours But before printing can begin you must tell the computer what the time signature is Each sequence step is then treated as a semi-quaver Printing starts from any measure in your score, so that if you've already printed part of the score, you can carry on from where you left off.

The Scorewriter looks like being a useful aid to learning the relationship between notes created on the keyboard and their position on the stave And it shows some of the potential uses a micro has for musicians But it has some drawbacks, notably the lack of clefs, key and time signatures The range of time values only extends from semi-quavers to semi-breves there are no triplets, no double dotted notes, no tie or phrase marks and you cannot change the time signature within a composition.

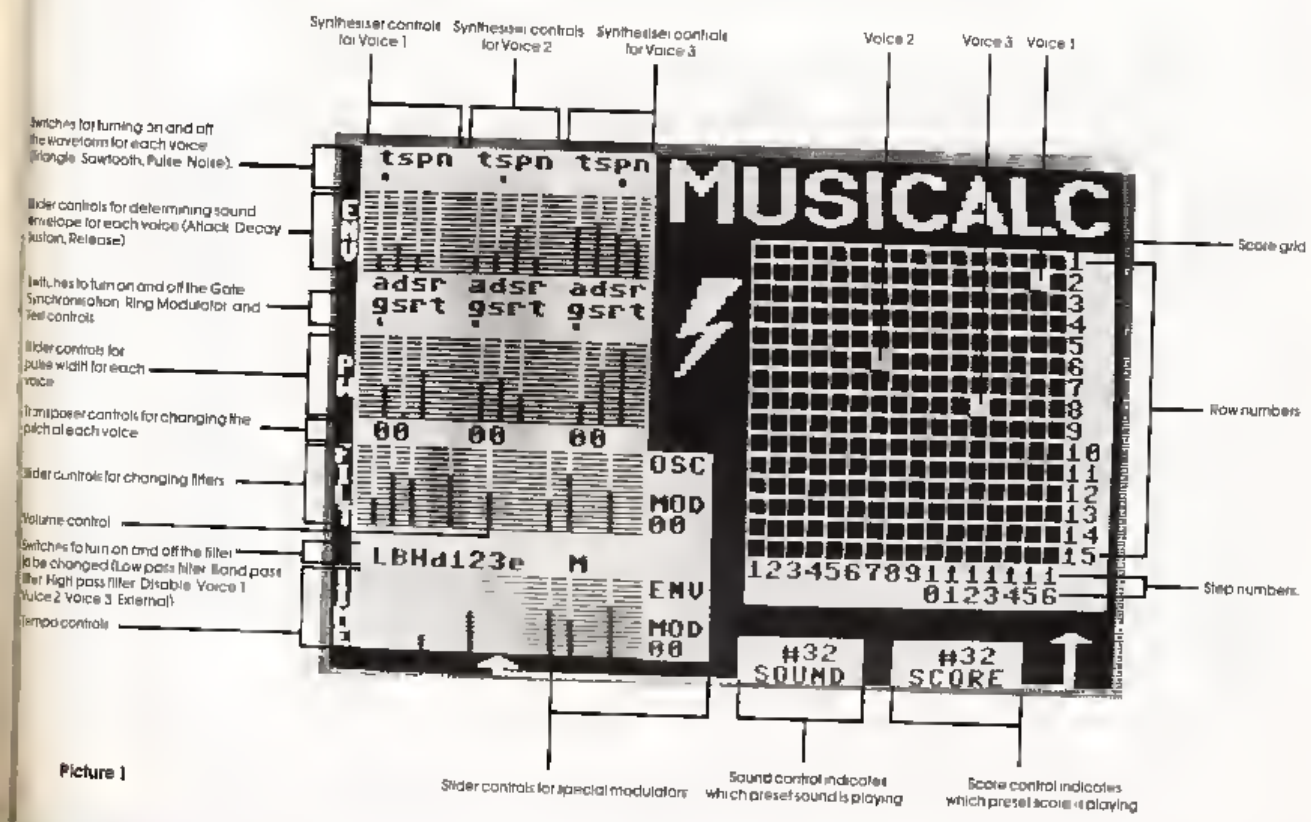
More facilities

Despite being advertised as a scorewriter, Musicalc 2 has three more programs unconnected with musical notation. Strangely, these bonus facilities aren't actually advertised. That highlights another of Musicalc 2's deficiencies, there is no written documentation and the scorewriter is barely mentioned in the Musicalc 1 manual. Admittedly there are two dozen 'help' screens in the package (and Musicalc UK is in the process of producing some written material) So it's only by exploring the contents of the disk that the user stumbles upon the extra software

First, there's List Maker. That lets you create a list of instructions for changing sounds during a musical sequence — a very useful enhancement to Musicalc 1 Each instruction is a set of numbers that can change the current synthesiser 'patch'. A list is made of up to 64 segments, each of which contains five numbers to control the following parameters score preset number, sound preset number, number of loops, jump out row (bar) and jump out step

The second program is called

REFERENCE GUIDE TO MUSICALC PANEL

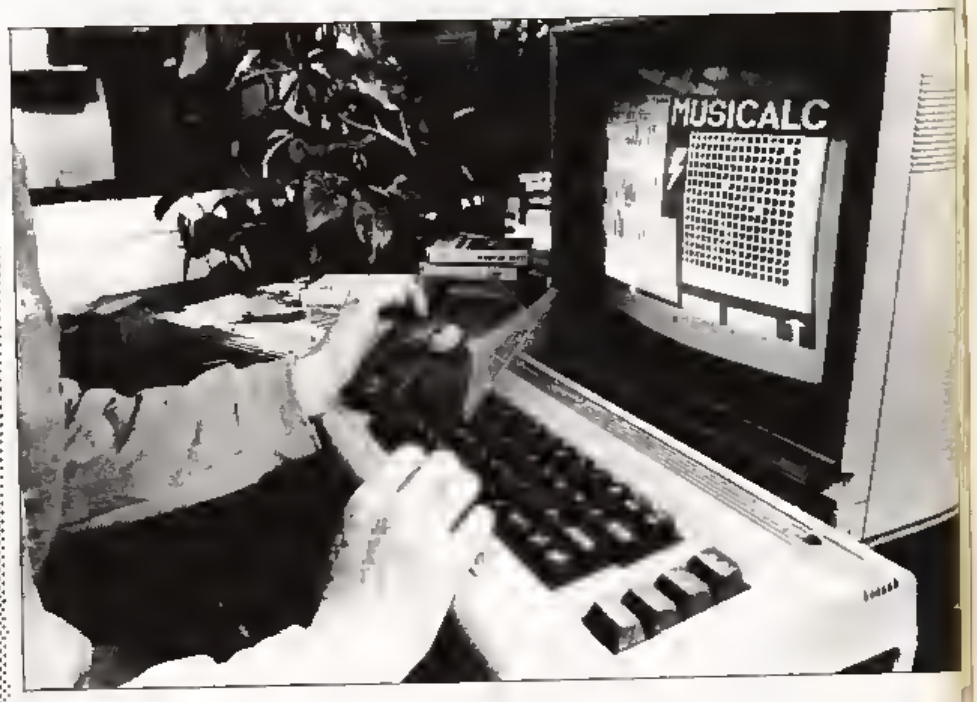


Picture 1

E. Sequencer. That's used to play through the list you've created, following the instructions as it goes. Musicalc 2 also supplies a sample preset score and sound file to give a demonstration of List Maker's potential.

Finally, there's a useful program called E. Sync which enables you to synchronise the output of Musicalc 1 to an external drum machine or synthesiser. You can even hook up another Commodore 64 and load Musicalc 2 into that, so that you can have six voices at once. The possibilities are only limited by your imagination.

You can also work the other way round and synchronise the output of the external sound generator to what Musicalc 1 is playing. But you must ensure that the external clock signal is not too slow — a device sending 24 pulses per event will work well. The Commodore 64 running Musicalc sends (and expects to receive) pulses at standard TTL voltage level. Unfortunately, E.Sync gives no information on how to connect external musical devices to the Commodore 64, but simply tells you to look at the connector pinout information in the 64 User Manual.



Even if what's been said is baffling to those of you who are new to synthesisers and hooking them together, you'll realise that Musicalc offers a great deal of potential in this area. But it's amazing that Musicalc is unable to tell you more about these first class facilities, or to provide written instructions on how to exploit them.

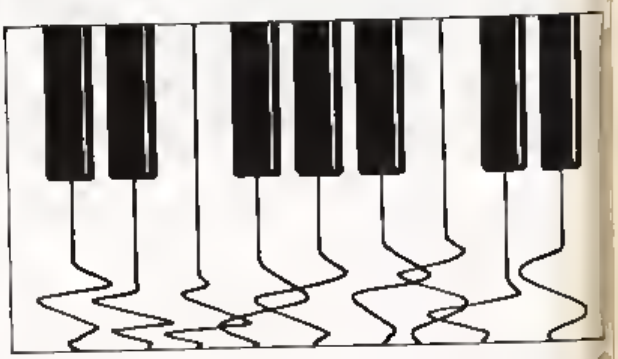
Musicalc 3 – the keyboard maker

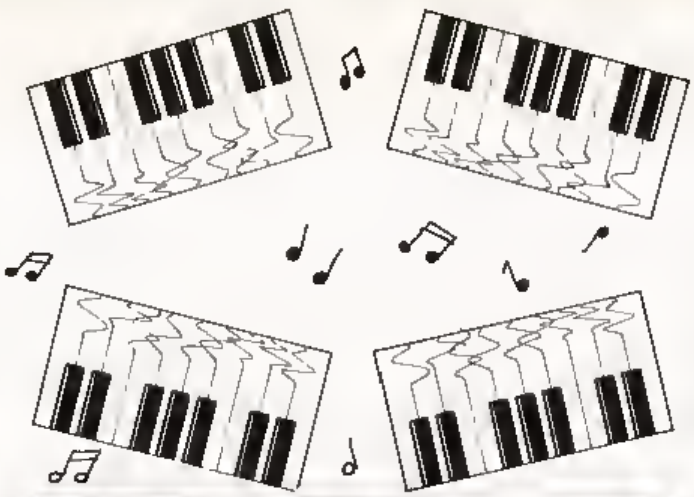
The last major component of Musicalc enables you to design your own musical keyboards using the Commodore 64's own 'qwerty' keyboard. That, in turn, can be used to input musical data into the Musicalc sequencer. You're provided with a screen display showing a cut down four-row 64 keyboard. In this mode, pressing any of the keys in the range moves a cursor to the corresponding position in the diagram.

You can now program a note to be played by that key using the Function keys 1 and 7. Those respectively raise or lower the pitch in semi-tone steps. F1 and F3 are used in the same way but control the octave.

This is a very flexible and useful piece of software because it lets you program a keyboard to suit your requirements. For example, you could program rows 2 and 4 to be 'white' notes and 1 and 3 to be 'black', thereby giving yourself a chromatic keyboard. Or perhaps you'd like to play strange and obscure scales?

picture 2 – the score screen





The program also offers facilities to transpose a row of keys the whole keyboard or to copy from one row to the next with relative pitch changes. And all your keyboard creations can be saved on to disk. Despite all that, the response from the actual keys is too slow to make 'real—time' playing feasible.

Still, the Keyboard Maker's function is to enhance Musicalc 1 and, in that respect, it works very well. As with Musicalc 2, there is no manual but there are around three dozen 'help' screens, which would make some written material desirable.

One more gripe is that although we're told that Musicalc 3 requires Musicalc 1 to work, there's nothing in the Musicalc 1 manual to tell you just how it all works.

Conclusion

There is no doubt that these Musicalc programs provide the most comprehensive exploitation currently available of the Commodore 64's music generating capabilities. In particular Musicalc 1, the mainstay of the system, which offers easy to use synthesiser and sequencer controls, a good graphics display and a full and informative manual.

Musicalc 2, though, desperately needs a manual, and I found the programs on the disk which are not advertised of more practical use than the Scorewriter itself. Musicalc 3 also needs a manual, but it's still another useful enhancement to the basic package. It should be said that Musicalc UK is working on documentation but none is available yet.

Nevertheless, the biggest drawback to the system is its cost. If Musicalcs 1, 2 and 3 are bought together with two template disks, the full comes to a whopping £160.

1st London MicroMarket

BARGAINS GALORE

WEMBLEY CONFERENCE CENTRE NOV. 10TH & 11TH

Here's your chance to sweep up all your Microcomputer needs before Christmas, at London's first ever Micro Market.

★ Thousands of Hardware & Software Bargains!
★ Competitions and Prizes
★ Win a Personal Computer!
★ Bring & Buy Swap Shop!
★ Free Computer advice at our Computer Surgery

All leading makes of Micro including:

★ BBC
★ Commodore
★ Apple
★ Spectrum
★ QL
★ Oric
★ Printers
★ Peripherals
★ Joy Sticks
★ DIY Robots
★ Modems

OPEN 10am-6pm Sat. November 10th
10am-4pm Sun. November 11th
Adults £1.50 Under 14's 75p.
Including FREE SHOW GUIDE

MICROCOMPUTER BARGAINS GALORE, LOWEST PRICES IN TOWN, DON'T MISS IT!!!

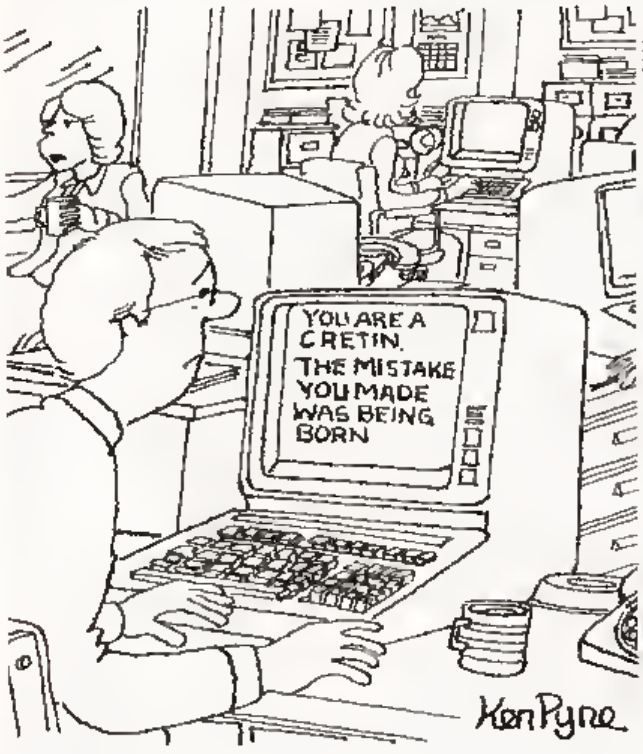
User friendly design – Part Two

Improving data entry

by Chris Preston

You may know what your programs are supposed to do, and you may know how they're supposed to do it. But you can't assume that everyone else will automatically share your insights.

This series, by professional programmer Chris Preston, shows you how to make the best use of the computer – and your programs. And 'best' in this case means 'most helpful' or 'most comprehensible'.



GIVE EXPLICIT ERROR MESSAGES

So on to the subject of data entry screens, and this is where the real work begins for the programmer. But before all you lazybones start to whine and turn over to the next article, remember this: once a subroutine has been written, you can use it again and again and again. And while it may cost you a few extra hours to write in the first place, thousands of grateful users will thank you for it!

Hands up all those who use the INPUT statement. Shame on you! The only statement you should even think about is GET. Preston's First Law: **With the INPUT statement, BASIC is in control and the poor user suffers.** If you use GET, you can make it really easy on the user by not letting him or her make mistakes.

How can you do that? Well, let's start with a simple Yes/No decision. You might write:

```
1000 PRINT "IS THIS DATA CORRECT";:GET A$
```

Tut tut. After all I've said about making it easy for the user.

● ***Rule 1: Give the user a clue***

If the user tries to answer 'YES', for example you will have an E and an S in the keyboard queue waiting for the next GET statement. Far better to say exactly what you want:

```
1000 PRINT "IS THIS DATA CORRECT (Y/N)";
1010 GET A$
```

This tells the user that he or she needs to press only one key. Similarly when asking for the date tell the user whether you want 310883, or 083183 (US format), or 31/08/83, or 31 AUG 1983, or whatever format your date validation routine expects. Of these various options, incidentally, 310883 is probably the best because it involves the fewest keystrokes. It's a trade-off between that and the meaningfulness of another format. But don't forget that your user may not be an expert typist – do be gentle!

● ***Rule 2: Don't let the user make mistakes***

Having got the data we can now verify it:

```
1020 IF A$="Y" OR A$="y" THEN 1250
1030 IF A$="N" OR A$="n" THEN 1100
1040 PRINT CHR$(7): GOTO 1010
```

By using the GET statement, and testing only for the keys we want to use, we can apparently lockout all the other keys on the keyboard. If our fumbling user misses the "Y" key and hits the "T" instead, he or she is brought to a halt by a squeaking noise from the computer (We'll expand on this method in the next article to show how to build up a subroutine that can replace the

Roomlord

NEW

PARAMOUNT

Retain the inheritance of Roomlord against Demons, Cyclops, Chinese Dragons, Gangsters and many others. 16 full playing screens will elevate you to Super Roomlord.

Written by Jason Benham
Available Now for COMMODORE 64 with Fast Load

Super graphics, excellent sound and a great sense of humour (5 stars). *Home Computing Weekly.*

Selected Titles available at

Boots

John Menzies

Retailers contact your local wholesaler

Export and distribution enquiries to Marketing Director
67 Bishopton Lane, Stockton
PARAMOUNT 16 1PU (0642) 604470

Post to:– Paramount Software, 67 Bishopton Lane, Stockton, Cleveland TS18 1PU

Roomlord	£6.95	( )
Megawarz	£7.50	( )
Outback 64	£7.50	( )
Chocabloc	£6.50	( )
Countdown	£5.50	( )
Outback	£5.50	( )

Name.....
Address.....

I enclose cash/cheque/PO for £
Overseas orders add £0.50 per item

QUALITY CONTROL FROM CREATIVE SPARKS ON C64

For those who demand excellence

CREATIVE SPARKS

Available from All good computer software stockists.

Send me (tick as required)

☐	**JAVA JIM** TNCE163 (C64)	**£7.95**
☐	**COUNTDOWN TO MELTDOWN** TNCE273 (C64)	**£7.95**
☐	**BIRD MOTHER** TNCE263 (C64)	**£7.95**
☐	**WING COMMANDER** TNCE203 (C64)	**£7.95**
☐	My local stockist's address	
☐	Your full list of games	

Game/s at £7.95 each	£ :	p
+ single P&P sum	:	30p
Total to send	£ :	p

Method of payment
By cheque or PO (no cash) made payable to **TECS**

☐ By Access

or

Enter card no. ☐ Barclaycard

Sign below

Credit card sales: UK buyers only
Response within 21 days.

Creative Sparks,
Department MO,
296 Farnborough Road,
Farnborough, Hampshire, GU14 7NF.
Telephone: (0252) 518364.

Name

Address

CU1184

INPUT statement)

The PRINT CHR$(7) in line 1040 just sounds the internal bell on most Pets; Vic and 64 owners can easily write a little subroutine to use the noise generators

Rule 3: Allow upper and lower case characters

Notice that we allow both "y" and "Y". Our user may be holding the shift key down after keying some data previously – learner typists often hold keys down while they are thinking what to do next, and so do expert typists who are used only to manual typewriters. Or the shift lock key (if there is one) may accidentally have been knocked on. In any case we can save our user a lot of trouble by allowing either shifted or unshifted characters – note that this also means that we should accept "!", and so on.

Rule 4: Validate all data as soon as it is entered

If you have a screen with seven or eight fields on it, validate every field as soon as it is entered and tell the user immediately if there's a mistake. Do not leave it till the end and then force him or her to go back again.

For example, if the user is keying in the readings from a laboratory experiment and you know each one should lie in the range 50 to 150, you can easily check that. If the user enters "15" you should stop and point it out immediately – not five minutes later, when anyone would have difficulty finding that reading again. The eager scientist may have thrown the paper in the bin. And if you are tempted to say, "Serves him right", remember Preston's Second Law: **Don't let the user make mistakes.**

Rule 5: Give explicit error messages

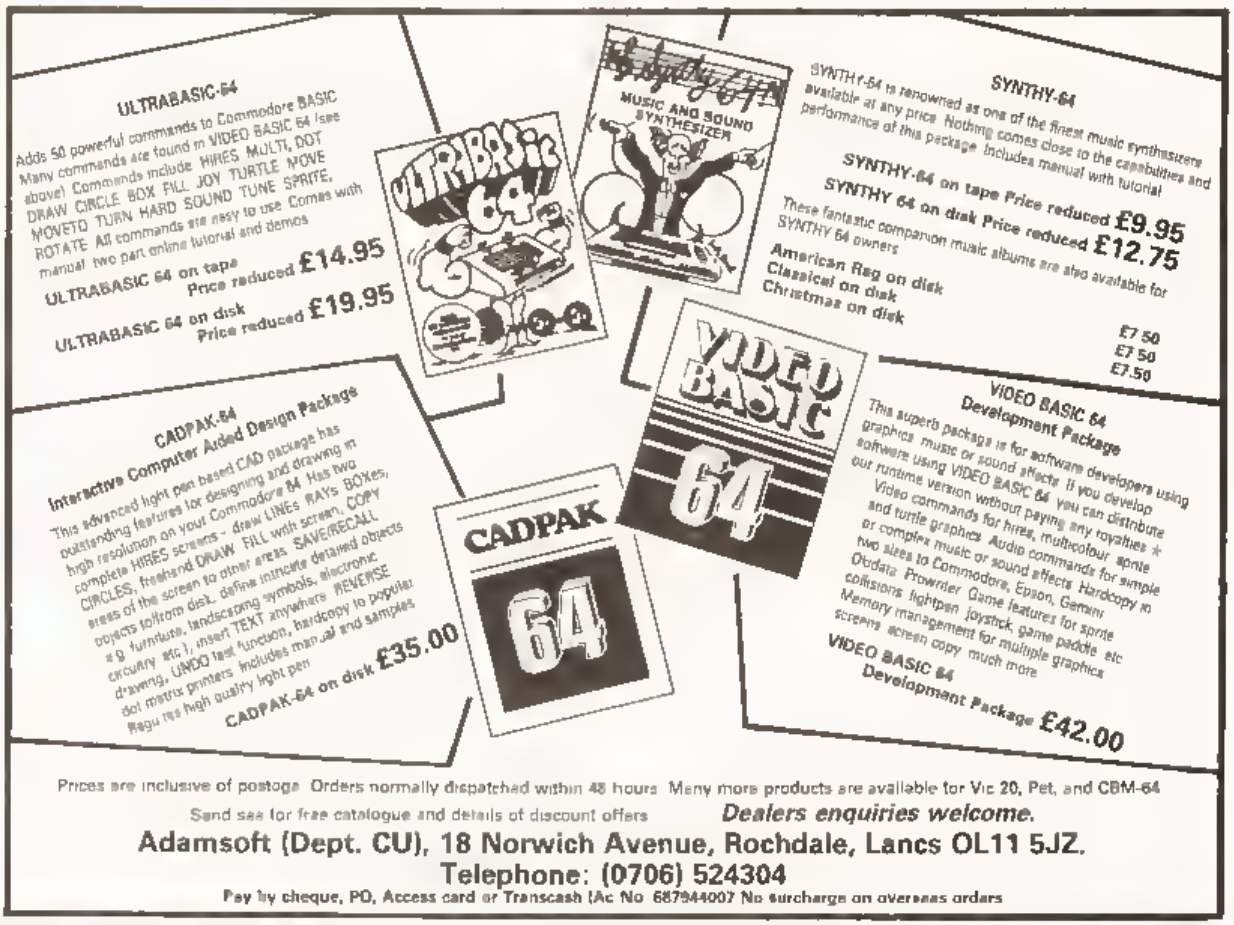
Error messages should do more than just tell the user a mistake has been made. They should say exactly what the mistake is and if possible what to do about it, and then give him or her a chance to correct it before carrying on. In this case the error message should not just say "INVALID READING" or even "VALUE TOO LOW", but "VALUE SHOULD LIE IN THE RANGE 50 TO 150" – and maybe even add "YOU TYPED '15'".

Many errors relate to peripherals such as printers and disk drives – examples are "PRINTER OUT OF PAPER" and "FILE NOT FOUND". In cases like these, don't just print the message and force the operator to run the program again from scratch. Give users a chance to put some paper in the printer, or to change the disk for the right one, and then try again. For instance:

PRINTER IS OUT OF PAPER. PLEASE REFILL.
PRESS [SPACE] TO CONTINUE OR [f7] TO ABORT.

Don't forget that the user may not have any paper left to reload the printer, and may have to abort the program! The ESCAPE key (preset on some PETs, but Vic and 64 users can always use another key) gives the chance to quit the program safely – closing any files which may be open, and so on – rather than having to turn the machine off to recover from the situation.

If you are groaning at the amount of work involved in implementing these rules (and some of them are a lot more tricky than they look at first glance), just wait for the next issue! Then we get down to the real nasty bit, the actual data entry section: Read on next month if you dare ...



CHROMASONIC PERSONAL COMPUTERS

48 Junction Road, Archway, London N19 5RD
TEL: 01-263 9493 and 9495
238 Muswell Hill Broadway, London N10
01-883 3705

COMMODORE 64

PROFESSIONAL COMPUTER SYSTEM

Commodore 64
1541 Disk Drive
MPS 801 printer
Easy-script (word processor)
Easy-file (database)
Introduction to Basic (part 1)
Box of paper and box of disks

ONLY £599.00
P&P £21.00

SX64

PORTABLE COMPUTER

Includes the following **FREE** software
Easy-script, Easy-file, Easy-finance and six games

ONLY £795.00 P&P £22.00

C= commodore 64

a Commodore 64	£195.95
c C2N cassette deck	£39.10
c Supersaver 64 cassette deck	£29.95
e 1541 disk drive	£195.95
i 1701 colour monitor	£195.95
e MPS-801 dot matrix printer	£175.00
f MPS-802 quality matrix printer	£295.95
d 1520 printer/plotter	£149.95
c RS232C (check for availability)	£34.95
c Z80 Card	£50.00
a Commodore joystick	£6.90
c Quickshot II joystick	£10.50
c Paddles (1 pair)	£13.50
a Microguide	£5.95
d Plinth for 64 system	£24.95
c Superbox 64 (inc. IEEE)	£94.95
d Vic switch –	£97.75
c DAM's IEEE interface	£69.95
c CBM 64 – Centronics inf	£58.54
c CBM 64 – Epson inf	£61.99

64 PACKS

64 BEGINNERS PACK
Commodore 64
C2N cassette deck
ONLY £229.00
P&P £10.00

64 STARTER PACK
Commodore 64
C2N cassette deck
Intro to Basic (part 1)
Quickshot joystick
A game of our choice
ONLY £255.00
P&P £10.00

64 HOME/BUSINESS PACK
Commodore 64
1541 disk drive
Box of disks
ONLY £395.00
P&P £12.00

MONITORS

Commodore 1701	£195.95
Colour & Sound – Microvitec 1431	£228.85
Colour (ideal for BBC) .... Microvitec 1431 AP	£258.95
RGB/Composite and Sound	£79.00
Philips 12" Green	£11.50
Monitor plinth (a)	

Postage on monitors £15.00

NEW PRINTERS

Daisy wheel printer	£229.95
RX80 (Tractor only) Dot matrix	£258.95
RX80FT (Friction & Tractor) Dot matrix	£299.95
FX80 (Friction & pin feed) Dot matrix	£345.95
FX100 (Friction & pin feed) Dot matrix	£429.95
Daisy Step 2000	£395.95
Juki Daisy Wheel	£11.95
BBC to Centronics cable (b)	£19.95
64/Vic to Centronics cable (b)	£7.95
Software for above (b)	

P&P on above unless otherwise stated (f)

MEDIA SUPPLIES

Diskettes by Verbatim (supplied in boxes of 10)

b SS/DD 40Tr	£17.95	b DS/DD 80Tr	£32.75
b SS/DD 80Tr	£24.75	a Flagfile library case	£1.35

c C15 cassettes 60p each or 10 for £4.50

Computer paper (supplied in boxes of 2000 sheets)
d 11 x 9½ £12.00 d 11 x 5½ £12.05 d 11 x 15½ £16.82

PRINTER RIBBONS (postage code a)

b Juki	£1.95	b MPS-801	£6.95
b Epson	£5.95	b 1515/25	£8.21
b MPS-802	£7.95	b Daisystep 2000	£5.52

Dust Covers (postage code b)

BBC	£2.95	64/Vic 20	£2.95 C2N £1.95
Single disk	£2.95	1541	£2.95 700/FX80 £3.95
Dual Disk	£2.95	1525/GP100 1526	£2.95 FX100 £4.95
			£2.95 Dragon £2.95

TERMS

VISA

Phone or send for our latest details of our range of products which is far too large to put into this advert. Besides the complete range of Commodore and BBC we also stock all the latest software and books for the 64, VIC, BBC and Dragon.

We guarantee all our products for 1 year (on 64 which is 2 years). Payment may be made by Access, Barclaycard, Bankers draft, Building Society cheque or cash. Sorry, cheques need 6 days clearance. Postage and packing see codes. ALL PRICES ARE INCLUSIVE OF VAT.

WE RESERVE THE RIGHT TO ALTER PRICES WITHOUT PRIOR NOTICE

Postage codes: a = £1.00 b = £1.50 c = £2.00 d = £3.50 e = £8.00 (Scotland £14.00 (Recorded)) f = POA c = Cassette D = Disk

BUSINESS

b Easy Script D	£69.00
b Easy Spell D	£50.00
b Easy Stock D	£75.00
b Easy File D	£50.00
c Superbase 64 D	£85.00
b Sales Ledger D	£76.00
b Purchase Ledger D	£38.00
b Visa Write D	£68.00
b Calc Result Ca	£49.95
c Calc Result (Advanced) D	£88.00
c Wordcraft 40 Ca	£89.95
b Practicalc C/D	£39.95/44.50
b Practifile C/D	£39.95/44.50

PROGRAMMING

b Intro to Basic Part 1 or Part 2 C/D	£14.50
c Simons Basic Ca	£45.00
b Assembler Tutor C/D	£29.95
b Assembler Development Package D	£24.95
c Pairspeed D	£50.00
b Programmers Utilities D	£14.99
b LOGO D	£34.95
b MON 64 Ca	£39.95
b Accs + C	£9.95
b Forth 64 Ca	£34.95

ADVENTURE STRATEGY

b Zork I, II, or III D	£11.95
b Flight Simulator II D	£35.95
b Hulk C/D	£9.99/13.95
a Beach Head C	£9.95
a Valhalla C	£14.95
b Solo Flight C/D	£14.95
a Tales of the Arabian Nights C/D	£7.00/9.00
b Colossus Chess C/D	£9.95/12.95
c Aztec Challenge C	£8.95
b Caverns of Kefta C	£8.95

GAMES

a Loco C	£7.95
a Flight Path 737 C	£7.95
b Bozo's Night Out C/D	£6.90/9.95
a Pinball Wizard C	£8.95
a International Soccer Ca	£9.99
a Revelation C	£7.99
a Forbidden Forest C	£8.95
a Treshman C	£7.99
a Bonga C	£6.95
b Space Pilot C/D	£7.95/9.99
b Zodiac C/D	£7.95/9.99
a Bumping Buggies C	£8.99
a Encounter C	£9.95
a Gilligan's Gold C	£8.90
a Manic Miner C	£7.95
a Hunchback C	£8.90
a Blagger C	£7.95
a Sheep in Space C	£7.50
a Aquanaut C	£7.00
b Superpipeline C/D	£6.90/9.99
a Son of Blagger C	£7.95

EDUCATIONAL (by Sulis)

b Beseiged C	£9.99
b Wordpower C	£9.99
b Time Traveller C	£9.99
b Open Sesame C	£9.99
b Just a Mot C	£9.99

BOOKS

c Programmers Reference Guide	£9.95
c 64 – Getting the Most From It	£7.95
c The Complete 64 Rom Disassembly	£9.95
c Using the 64	£9.95
c Commodore 64 Adventures	£9.95
c Elementary Commodore 64	£13.95

c = Cassette Ca = Cartridge D = Disk

SCREEN SCENE Vic

CHARIOT RACE
Vic-20 (unexpanded)
Keyboard only
Price £6.95

Step back in time to the good old days of Julius Caesar and Ben Hur (or hum - we don't want to be accused of discrimination!), when more people flocked to watch the chariot races than they do the F.A. Cup Final.

Amidst the noise and dust, four teams thunder around the arena in a perilous bid for fame and fortune – the prize money could be as much as 60,000 sesterces (about 20p in these days of inflation). Great skill is needed to guide your chariot round the course at an ever-increasing speed, avoiding other competitors and raising your score by pushing them into the wall.

To start with, the opposing chariots are very well-behaved but as the score goes up, you'd better look out. Don't go too slowly or the crowd gets angry and starts throwing fireballs on to the track. It is fatal to run over one of these and survival at a low speed is very difficult.

This is a superb game for one or two players, the only snag being that it is keyboard only, and those who have a distinct inability to distinguish their left from their right will be in dire trouble with the emperor – if they succeed in getting round the first lap, that is! Realistic sound and good graphics – all squeezed into the unexpanded Vic – marvellous! *WG/PR*

Micro-antics

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■■

WUNDA WALTER!
Vic-20 (+16K)
Joystick only
Price £8.00

Wobbly, wacky and welcome is Wunda Walter. This is a funky, nonsense game requiring aeronautical skills and an aptitude for executing telling belly-flops. Guide Walter in a flight across four distinctive, scrolling landscapes, swooping down to the ground to steam-roller small, evidently offensive globes then lurching into the stratosphere again to avoid prickly vegetation and abrasive rocks. As you soar over hills and valleys, keep an eye out for marauding balloon bustas bearing in mind that erupting volcanoes ain't too healthy for wind bags either.

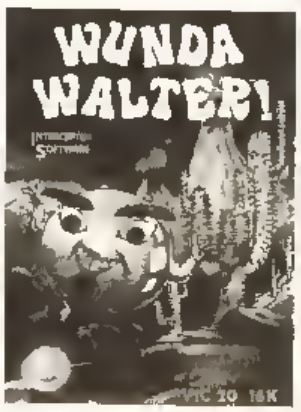
The title screen depicts the four regions which are to be your stamping ground: a red volcanic region, white icy wastes, a tropical sector and an arid yellow desert.

Soundwise? The Yellow Rose of Texas is the opening fanfare with good supporting sound effects scattered throughout the program. It is possible to wave goodbye to the Flying False Teeth of the first screen and face the cyan balloon-poppers of the polar regions simply by picking up easy points: there is no compulsion to stick your neck out, or whatever balloons have instead.

Overall, a first rate fun game full of colour and even a scrolling commentary. Not suitable, however, to those who prefer their close encounters to be of the deadly earnest kind. *LS*

Interceptor Micros

Presentation:	■■■■■
Skill level:	■■■□□
Interest:	■■■■□
Value for money:	■■■■■



SQUISH!

SQUISH!
Vic-20 (any)
Joystick only
Price £5.99

Graphics and sound are adequate for the job-in-hand in this creepy crawly-crushing fiesta. You are a blue cross set in a white screen by pushing green-outlined pebbles around you get to mash bugs – if you manage to catch them against something solid. Of course these purple insects move about searching for you, spit deadly arrows and are perfectly capable of shifting stones themselves. So you will need to be pretty quick and cute to rub them out and preserve your own hide. Not a lot more to say except that the game is original, enjoyable and not a doddle. Eminently playable, with twenty levels and the promise that the bugs become invisible on the real toughies. *LS*

Palace Software

Presentation:	■■■□□
Skill level:	■■■■■
Interest:	■■■■□
Value for money:	■■■■■

BRICKS
Vic-20 (any)
Joystick only
Price £5.99

A ridiculously simple idea . why wasn't it thought of before? The graphics and sonics aren't brilliant but the game itself could well grab you by the scruff of the neck and have you utterly hooked. From the Great Brickyard in the Sky someone or other is raining down bricks in your direction. you are trapped in a mega hole. Your only hope of salvation is to jump on top of the bricks as they land, at the same time avoiding those making straight for your nut, thereby eventually scrambling to ground level. Five more screens to play though!

You can only jump up one block at a time but you may slide isolated bricks about to construct makeshift steps: you may leap down from any height without incurring a penalty. By making the pit narrower each time round, the clever cloggs author has ensured it doesn't become too easy. But just in case, from level three the height of your wall is reduced from time to time by a whole row.

I said it was simple, but most people should find it addictive. *LS*

Palace Software

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■□

SCREEN SCENE

THE BIGGEST RANGE YET

COMPUTER PRODUCTS

At Last !!

A truly proffesional design standard light pen drawing package. You really can draw accurate detail drawings quickly and easily using this superb 100% machine code software supported by an extensive and helpful manual. Built in architectural and electrical symbols with facilities to add an unlimited number of your own symbols eg: musical, mathematical etc with others to come soon from Stack. Printing routines are included for CBM and Epson printers and custom drivers can be added. For fun, ten games for the pen are included in the pack together with two sample pictures. All supplied on two double sided tapes with instructions for transfer to disk operation. You really must see this to appreciate just how good it is.

NEWS SPOT

[illegible]

AVAILABLE FROM

Branches of:- W H Smith, Dixons, Menzies, Spectrum, Tesco, Makro, Greens at Debenhams and all good computer stores.

MAIL THIS COUPON NOW!!

To **Stack Computer Services Ltd., FREEPOST, Bootle, Morseyside L20 0AB.**

I am interested in your accessories for

- ☐ VIC-20
- ☐ CBM 64
- ☐ BBC B
- ☐ Dragon
- ☐ Atari

Name _____

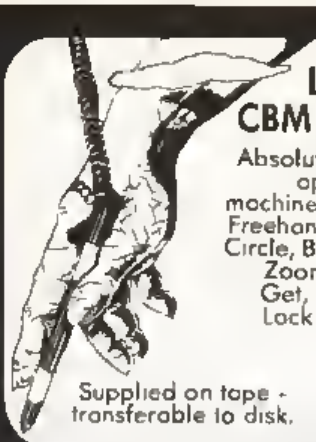
Address _____

All prices include Vat
Add p & p £1 90 free on orders over £25 00

RETAIL PRICE LIST

Rifle	29 95
Pen	28.00
Centronics	24 00
Centronics on disk	29.00
RS 232	33.00
Disk Compiler & Key	39 95
Disk Compiler No Key	19 95
Tape Compiler	14 95
IEEE 488	60 00
Help Cart	25 00
Super Help Cart	35.00
Arrow Cart	26 00
Arrow Plus Cart	44 00
10 x C12 cass	5.00
Analogue Joystick	15 00
Zap Proof Joystick	7.95
Auto Fire Adaptor	4.75
Vickit 2 (Programmers Aids/Hi-Res Commands) Cartridge	32.20
Vickit 3 (Comprehensive Hi-Res System) Cartridge	26 45
Vickit 4 (High Speed Cassette/M.C Monitor) Cartridge	26.45
Vickit 5 (For use with Vickit 4 - provides Assembler facilities on Vic) Cartridge	26 45
Ram & Ram Carrier	9 20
C2N Dust Cover	1.75
Vic 20/64 Dustcover	2.00
1541 Dustcover	1.83
1525 Dustcover	2.35
1526 Dustcover	2.35

Full range of Leads, Connectors Dustcovers etc Ee Stock at Very Competitive Prices.



Light Pen CBM 64 or Vic 20*

Absolutely the best....see opposite-100% fast machine code Featuring:- Freehand draw, Nib size, Circle, Box, Fill, Line, Text, Zoom, Animation, Put, Get, Save, Load, Print, Lock X, Lock Y and 10 Games.

*needs 16k

Supplied on tape - transferable to disk.

£28.00

Stack Light Rifle

£29.95

A unique game system for Vic 20 or CBM 64. Load one of the three games included and shoot the cowboys, rats, convicts etc on your T V from up to 10ft away. Complete full colour and sound effects.

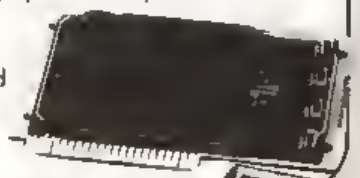
CBM 64 Compiler

Turns your normal basic programs into very fast machine language like code

1. Disk Based with protection key	39.95
2. Disk Based with no key	19.95
3. Tape Based	14.95

4 SLOT Motherboard VIC 20 & CBM 64

A high quality switchable expansion unit with gold slots enabling up to 4 compatible cartridges or RAM packs to be simultaneously inserted and turned on or off at will.



£38.00

CENTRONICS INTERFACE VIC 20/CBM 64

A very high quality strengthened cable (not flimsy ribbon) together with easy to use driver software on cassette (disk £5 extra) compatiable with Easyscript, Vizawrite, Simplywrite, Wordcraft and many others (but not all).

£24.00

RS 232 C INTERFACE CBM 64/VIC 20

A full Bi-directional interface for Printer, Plotter or modem connection. Provides standard D-type male connector compatible with any software which uses the serial port. Special cable service available if required. Full documentation

£33.00

IEEE-488 VIC 20/ CBM 64

This cartridge provides the standard CBM connector and enables all 3000, 4000 and 8000 series disk drives and printers to work with the Vic 20 or CBM 64. Supports normal CBM 64 commands

£60.00

ARROW C64

A Cartridge Giving
- 7 times normal cassette speed for loading and saving
- Machine Language Monitor
- High Speed Tape positioning
- Hexadecimal Calculator

at **£26.00**

ARROW PLUS C64

All of the features of Arrow with the addition of Assembler and Disassembler facilities

at **£44**

HELP C64

This Cartridge is absolutley packed with terrific routines and facilities
20 Additional Basic Commands, Printing Disassembler, Monitor, Disk Operating System Support,

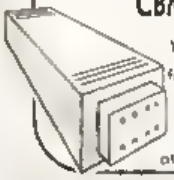
all for only **£25.00**

SUPER HELP C64

This Cartridge features all of the commands of Help with the addition of a Full Symbolic 2 Pass Assembler

at only **£35.00**

AUTOFIRE ADAPTOR CBM 64/VIC 20



Connects between your joystick and the computer and gives full autofire facilities. Now you can really Zap em

at **£4.75** inc Vat

ZAP - PROOF JOYSTICK

Almost unbeatable, rubber feel, 2 fire buttons great action quickshot look alike

£7.95

STACK 100

COMPUTER PRODUCTS

The dim and gloomy evenings of winter begin to draw in. Now, more than ever, you'll be wanting to sit by the fire battling it out with hi-res mythical monsters. Not unaware of this, Adventure software houses are stoking up the boilers in readiness for the run-up to that great festive Spending Spree of the year...

Philip Mitchell's **The Hobbit** probably suffered a little from over-familiarity by the time a Commodore 64 version appeared, and the same may be true of *Valhalla*, several major outlets I've visited recently are offering the 64 version at a fiver below its recommended £14.95, which suggests that it's not moving off the shelves.

Anyway, Mitchell looks like taking the creative honours again with **Sherlock**, which Melbourne House releases for the 64 this month at £14.95. His dastardly programming allows you to take on the persona of that well-known Baker Street sleuth, cross-examining and even arguing with other characters by using proper sentences in an against-the-clock search for the solution.

The emphasis in Sherlock is rather more on text than pretty pictures, but there are plenty of the latter to be found among the 40 full-screen animated graphics which illustrate **Castle of Terror** by Grahame Willis and Greg Holland, also from Melbourne House, at £9.95. Haven't played it yet, but first impressions are pretty favourable.

Hampstead, a kind of adventure-cum-strategy game for men who do eat quiche, is also due out from Melbourne soon at £9.95.

Burning the candle

Another author who manages to devise consistently cortex-crunching graphic adventures with the apparent casualness of a Sunday morning shave is Brian Howarth, whose newest Channel 8 title, **Waxworks**, won't disappoint those who have already sampled earlier releases such as *Perseus and Andromeda* and *The Golden Baton*. Not for novices, perhaps, but the more experienced gamer will appreciate the clever challenges to logic and resourcefulness that the author devises.

The game lets you take on the role of an innocent among the candle people, facing all kinds of strange situations as you explore the not-so-inanimate population of the museum. It comes with a helpful leaflet of general hints, but you can also get a clues leaflet from Channel 8 if you're really stuck. Altogether, it's pretty good value at £9.95.

Incidentally, Vic owners with a 16K RAM pack will be pleased to learn that special versions of Channel 8 titles will be available for them, too, in the near future.

Taking what our American cousins call an overview, it's still a little surprising to see a virtual absence of any new text adventures for months now. Thankfully, Commodore are remarketing several classic Infocom titles – **Zork I, II** and **III, Starcross** and **Suspended** among them – at £11.90 on disk only; that's around one-third the original import price of just a year ago. These remind us just how good (indeed, how unbeatable) a text adventure can be. And the player guides that come with all these titles are also state-of-the-art examples of how such documentation should look and inform. Pity about Commodore's cheap and nasty cuppa-soup cartons.

Room with a view

Jason Benham is quickly proving that, like Jeff Minter, he's no one-title wonder. With *Outback* and *Megawarz* already in his swag-bag, the young Mr Benham has turned his talents to the realm of arcade adventures and **Room Lord** (Paramount, £6.95) is the very creditable result. There's nothing too new about the concept, which has your alter ego picking its way through some nicely designed and animated screens to amass a number of objects and treasures.

Some of the graphic elements acknowledge the art of Matthew Smith and the aforesaid Mr Minter (including that Dalesque winking eye) but many are very original, exciting or just plain nice to look at – and as there's a freeze-game facility, you not only have a chance to cool your joystick but also an opportunity to study and perhaps learn from the author's ingenuity with sprites and user-defined characters.

A nice feature of Room Lord is that you can start making progress through the early screens pretty quickly, which works wonders in holding interest. As an arcade-style diversion that doesn't presume a high level of ability at the early stages anyway, and which also makes better than average use of the 64's music capabilities, Room Lord could be one of the better buys for your library.

Club spot

Top adventure titles are among the goodies offered to members of two new mail order software clubs. The **Home Computer Club**, a spin-off from the huge W H Smith/Doubleday operation, has a special selection for 64 owners and lets you choose three titles from a selection of 15 tapes and books at just 75p each. They include **The Hobbit** book/program package, Keith Campbell's **The Pen and the Dark**, and a Collins adventure for the weanies, **Paddington's Problem Picture**. Thereafter you're committed to making one purchase every two months. Details from HCC at Swindon, SN1 5XE.

You can join the **Commodore Club** run by Logic 3 for £3 a year and enjoy discounts of up to 50% on scores of 64 and Vic software which you buy if and when you like from the tempting catalogue. The first edition offers several Level 9, Channel 8, Supersoft and Richard Shepherd titles at an average £1.50 below shop prices for tape or disk. Address is Mountbatten House, Victoria Street, Windsor, Berks.

Do it yourself

There can be few adventurers who don't plan to take a stab at writing an original of their own one day – and maybe have started. But if you don't have an original thought in your head, you can always crib from the works of a famous author (but give Tolkien a rest). And if it's your technique you need to polish, you'll probably need to look no further for tuition than A J Bradbury's **Adventure Games for the Commodore 64**, (Granada, £6.95).

Drive faster!

There's nothing worse than waiting for your program to load. And good though the Commodore 1541 is, speed isn't exactly its biggest feature.

Hook up the new 1541 Express from RAM though, and you'll be up and running like lightning.

This ingenious add-on speeds up data transfer from the 1541 and new 1542 disk drives to your Commodore 64. So much so, that you'll wonder how you ever found the patience to wait before.

With the Express you can load programs in a third of the normal time. That means less frustration and less time wasted.

(You can fit it yourself in minutes, too – and disconnect it just as easily).

The new 1541 Express from RAM.

To shift your drive into top gear call into your nearest dealer today.

Or call our credit card hot line on 02514 25252. (Access and Visa welcome).

Or complete the coupon below and send it today to Dept. C.U., Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire, GU13 8PA.

24 Hr despatch for credit cards and postal orders.

Please send me:

1541 Express High Speed Disk Loading Cartridge(s)

at **£49.95** + *£1 p&p (overseas orders £3 p&p)*

I enclose cheque/postal order or charge Access/Visa for £ _____

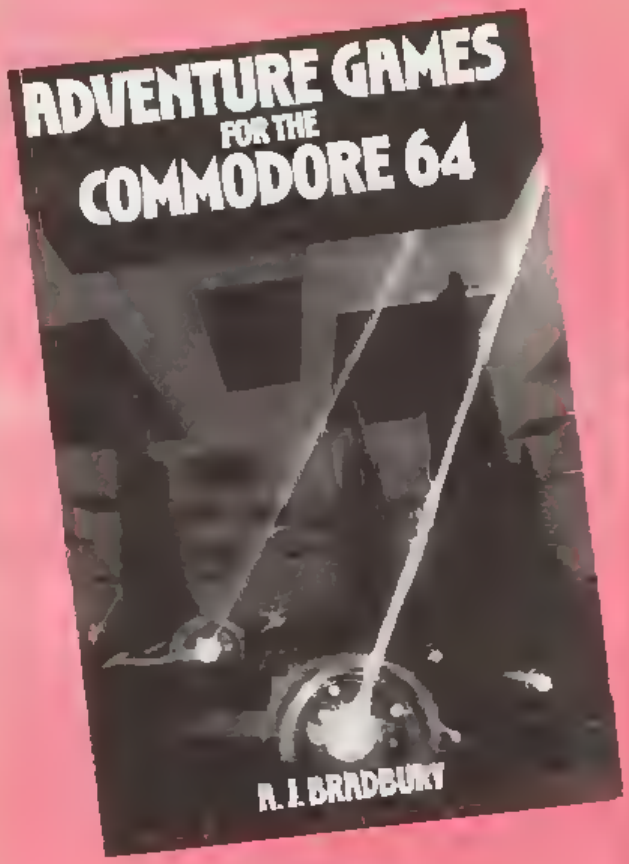
Name _____

Address _____

Post Cd _____

Tel _____

Trade and export enquiries welcome



Now while my personal favourite as a Primer remains Mike Grace's Commodore 64 Adventures (Sunshine, £5.95), Mr Bradbury takes the reader up more sophisticated avenues. His highly readable explanations are supported by effective and often downright ingenious routines for introducing independent action of characters or events, tokenisation (which permits you to cram your text screens much fuller than your 39K of usable RAM normally allows), compound parsing to allow full sentence inputs, and much more.

This book scores most when it's covering the tricks and treats of text input and response, and thus the chapter on sprites and sound could have been chopped to good purpose in favour of even more of the author's spot-on observations of what makes a good and bad adventure. It still has to be the book of the year on this subject; a treasury of professional programming secrets that can help to bring real slickness and sparkle to even your earliest attempts at adventure authorship.

Short-trousered adventuring

You'd be right in presuming that the same Mr Livingstone who brought dungeons and dragons to our shores almost single-handed, is the author of Puffin's best-selling *Fighting Fantasy* adventure books, one of these is the launch title in Puffin's new range of software. **Forest of Doom** is so visually strong that you really need to see a demo to have any idea how good it is. Sure, it's simple in terms of player response – just a couple of action options every move – but this is more than balanced by the imaginative descriptions of the characters and locations, limitless variations of the scenario at each play, animated interludes (which have the player literally dicing with death) and constantly-refreshed status screens. Although Forest of Doom is clearly intended for children, it certainly won't disappoint the adventurer in long trousers either.

For even younger players, keep a look out for **My First Adventure** from *Jolly Rogers* Software (£5.95 tape, £9.95 disk). After being greeted by a pleasant snatch of music, the player is launched on the task of searching for the characters from several familiar nursery rhymes and must take the right action when they're encountered if you're to make further progress.

There are lots of colourful graphics and sound effects to hold the young player's attention – and even the spelling of the fast, helpful and often amusing responses are guaranteed correct, were that it was always so! As Jolly Rogers are a small outfit, your usual retailer might not stock the title, you can order it direct from 19 Castledown Avenue, Barnehurst, Bexleyheath, Kent DA7 6QT.

Screen tip

One of the nice touches about Ian Livingstone's Forest of Doom is the way in which the text 'washes' across the screen later by letter. It adds interest and the technique allows you to vary the speed at which the text is presented (or allow the player to choose). Here's one way of achieving a similar effect:

```
100 POKE 53280,6:POKE
    53281,6
110 PRINT CHR$(147):
    X$="THIS IS ONE
    EXAMPLE OF SHADOW
    PRINTING"
120 FOR A=1 TO LEN(X$)
130 PRINT CHR$(154); .PRINT
    MID$(X$,A,1);
140 FOR B=1 TO 80:NEXT B
150 PRINT CHR$(157)CHR$(5);
    :PRINT MID$(X$,A,1);
160 FOR C=1 TO 125:NEXT C
170 NEXT A
180 PRINT SPC(41)-GOTO 120
```

Be careful to include all four semicolons in lines **130** and **150**. The speed at which the shadow and main image of every letter appears and is replaced can be easily altered by shortening or lengthening the delay loops in lines **140** and **160**.

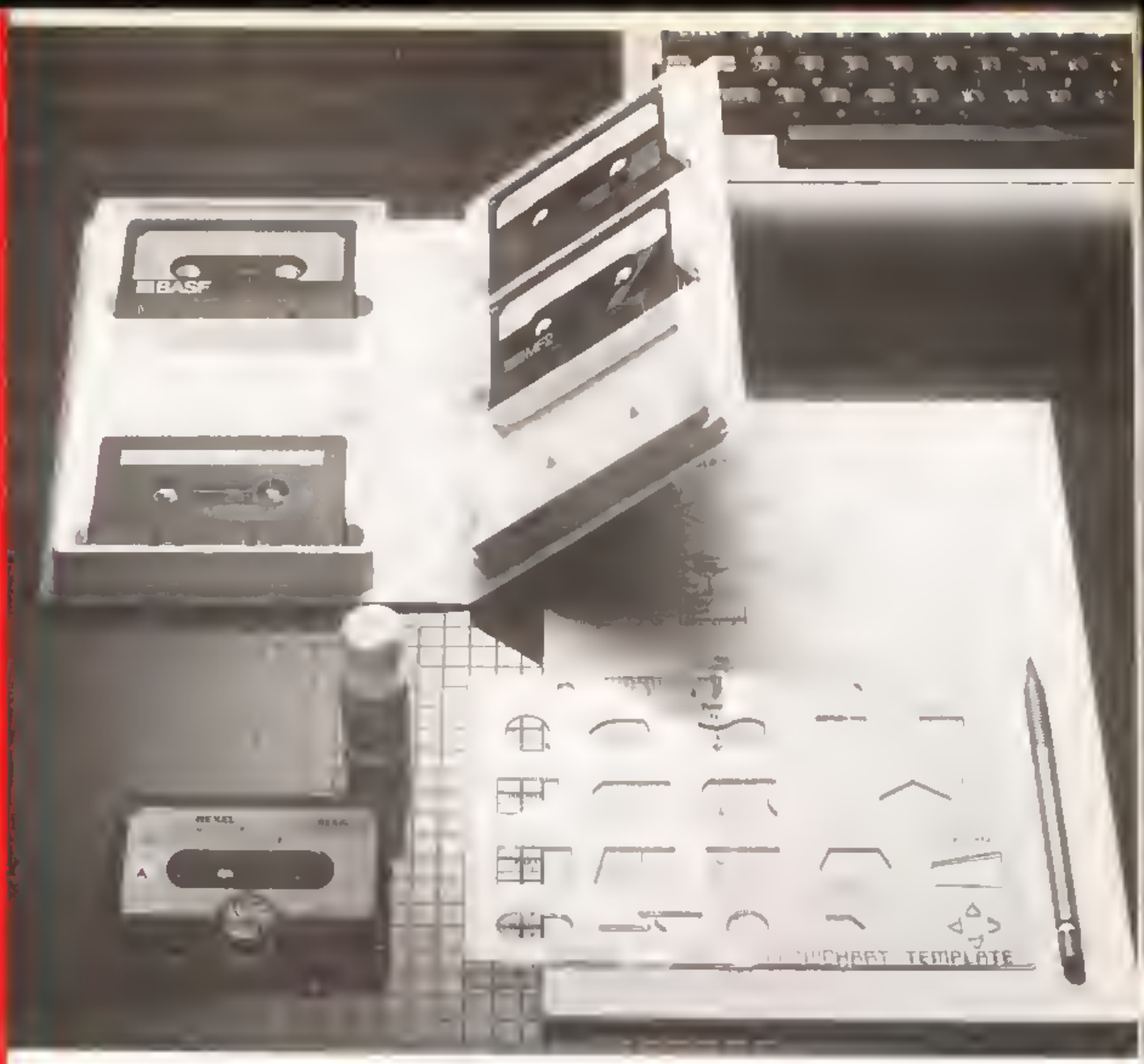
Do you have a short routine for enhancing the appearance or layout of text and graphics in home-made adventures that you'd like to share? If so, write to me c o **Commodore User**, with the details and/or a listing and I'll try to include a selection in a future issue. Sender of the tip I autocratically judge the best will win a copy of *Adventure Games for the Commodore 64*.

In a future column, I'll be taking a fairly critical look at some of the programming aids of particular interest to adventure writers, including those graphics utilities and compilers that can help you develop text or graphic adventures of a commercial standard. Drop me a line if there's any you can personally recommend. Incidentally, Gilsoft are following up their much-welcome release of a 64 version of The Quill (which seems to offer some refinements over the Spectrum original) with several text adventures. **Devil's Island**, **Barsak the Dwarf** and **Misdbender** should all be worth investigating at £8.95 each on tape.

New Releases

The buzz is that to counter the blows raining from Maxwell's silver hammer, The Sun mean to launch a rival to Mirrorsoft; titles will include explicitly graphic adventures responding to simple one-word commands nearly spelt right. . Four programs on two tapes is what you get with the 64 version of **The Pettigrew Chronicles**, a graphic adventure from Shards at £9.95. Richard Shepherd will follow the safety-pat charm of Urban Upstart with the more rural **Upper Gumtree** at £9.95, or £11.95 on disk.

Quicksilva haven't forsaken adventurers after all – their hire since the 1983 title *Ring of Power* are the disk based animated quests **Dungeons of Ba** and **Castle of Jassoon** (out for Christmas at £14.95). Creative Sparks promise toil and trouble in **Macbeth**. Plenty of adventures to play and techniques to crib in **Adventures for the Commodore 64** from Virgin at £2.95. **The Saga of Eric the Viking**, a graphic adventure based on the pythonesque Terry Jones award-winning children's book will be Mosaic's next big release for the 64 at £9.95. Phew – that's enough for now.



£11.49 OR LESS. HOW'S THAT FOR STARTERS?

Everything you need to organise yourself and to operate and maintain your computer – cassette storage, programming, cleaning – all together in one complete kit.

The Rexel Home Computer Starter Kit is put together by experts to help you get the very best out of your micro, especially if you are starting on the exciting business of creating your own programs.

Compatible with every cassette driven micro, it is available now at W H Smith, John Menzies and other leading suppliers. And at £11.49 or less, it's an absolute gift.

Also look out for the range of Rexel Computer Care and Maintenance products. Prices start from £3.50. You couldn't have a better start than that.

For more information on the Rexel Computer Care products, write to Rexel Ltd, Gatehouse Road, Aylesbury, Bucks HP19 3DT.

REXEL
COMPUTER SUPPLIES

TAKE A CLOSER LOOK AT REXEL

Word Processing

Wordprocessing on the cheap

Textpro reviewed

by Chris Durham

With many wordprocessors for the Commodore 64 costing between £45 and £90, what can you expect from a WP package costing under £10? What can the casual user expect to get for this humble sum of money? We set our wordprocessing guru, Chris Durham, to track down one such program to see how it compares, here's how Textpro from CentreSoft (US Gold) shapes up...

Many users of the Commodore 64 can't justify spending up to £90 on a WP program, simply because they just wouldn't use it enough to make the outlay worthwhile. So a wordprocessor costing under £10 must surely warrant a look since this is much more in line with the 'casual' purchase and not much more than you'd pay for a game.

Textpro costs £9.95, and is available from CentreSoft under licence from A and C Software. The disk version is slightly more expensive at £12.95. If you have a disk drive, you must get the disk version as the tape version is unable to save documents on disk. This is rather a drawback for someone who buys the tape version and then upgrades to disk later; perhaps the suppliers will consider an exchange?

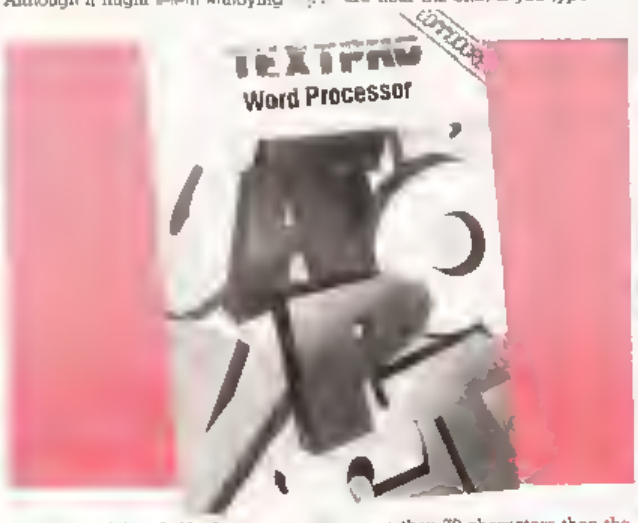
As you'd expect from the price, Textpro has several drawbacks compared to its more expensive brethren, notably the size of documents it can produce. This doesn't imply that it does not have the capacity to hold large documents, rather that its deficiencies become rather obvious the larger the document you are working with.

Textpro can accept 350 lines of 70 characters; this is fixed and you cannot alter the line width. This will not really be a problem in practice since 70 characters is standard for letter writing on most printers. There used to be no way of adjusting, or even setting, the page length, but the new version just released now has a 'page break' option.

This allows single sheet paper to be used as well as enabling you to set the top of page correctly on fan-fold paper. You can also concatenate files into one document, provided the total does not exceed the maximum number of lines.

Inputting text

This is straightforward and unsophisticated, like many similar cost programs you cannot use the cursor keys, only 'delete'. Although it might seem annoying to have to delete half a line just to add a missed word or letter, you will be much better off doing it at this stage rather than trying to add things later using the 'Edit' option.



Tabs can be obtained using f5, but operate in a peculiar way: instead of having preset Tabs, you specify which column you want to Tab to each time you select the function. The result is the same, but I found it a little clumsy. After all, you don't tend to change the Tab settings every line. It's also possible to 'centre' headings by using **f4**, but this is limited to exactly half a line (35 characters).

Text is formatted by making two lines on the screen equal one printed line. This means that words wraparound on every other line, that makes what actually appears on the screen rather difficult to read. When you reach the 65th character a 'bell' sounds, reminding you that you are near the end. If you type more than 70 characters then the line stops at 70 and ignores the rest, if you haven't completed the word you are currently typing you must delete it, press RETURN and re-type it on the next line. The 'bell' is a good idea, but constantly deleting part words because they don't fit is a bore; two-fingered typists will probably not find this a problem, however.

Blank lines can be left by pressing Return only, one restriction being that you cannot have a blank line as the first line of a document.

Pressing **f1** at any time will return you to the menu. You can then print, edit or save text before returning to add more text if required. While on the menu you can also check on remaining memory and get a count of the number of words in the document so far. One slight problem is that the word count is rather inaccurate. I typed a file of twelve words and then made it do a count... the result was 16. It serves as a guide, but don't rely on it.

Outputting text

This can be done either to a printer or to the screen. The printers which can be used are limited to Commodore models like the 1515, 1525, and 1526. A Centronics parallel printer will work quite happily using a serial port (not User port) interface. One advantage is that Textpro can also be used with the 1520 printer/plotter, an option not available on many other WP packages.

There are no options of any description when printing; it just puts on paper exactly what is held in memory. Thus you cannot print text double spaced, emphasised, enlarged or anything else that your printer might be capable of. This immediately limits its scope to basic home correspondence, this is reinforced when you consider the print quality of the printers it is primarily intended for use with.

The screen print option displays four complete lines at a time so that you can check them, that's rather laborious for large documents. You are returned to the main menu at the end of either option.

Editing text

This is the area where economies are invariably made

DEALER ENQUIRIES
01-241 2354

MusiCalc

MAKES THE 64 MAKE MUSIC

CREATIVE MUSIC

MusiCalc turns your Commodore 64 into a sophisticated musical instrument. And it turns you into a composer, performer and conductor.

MusiCalc 1's Synthesiser and Sequencer is the heart of the system. With it you can use your computer keyboard to program the tempo, key and style of music you want and also to play your favourite tune. The computer screen will show you what the music's doing as you play and how to control it.

Start by selecting one of MusiCalc's preset scores. Try combining that with a preset sound you like. Choose the scale you want to play in – anything from jazz to Japanese.

And you've got music.

Exercise your musical creativity by putting the three voices together any way you want, and play whichever parts you'd like. Make changes and add special flourishes to create your own compositions.

Even a musical novice will sound good right away. And the greater your musical talent, the more challenging and exciting MusiCalc becomes.

And the result is not mere imitation of conventional instruments: between them, MusiCalc and the Commodore 64 can and should perform as a single musical tool in their own right.

There are things that you can do with that tool which would be impossible on anything less than an expensive professional synthesiser: MusiCalc's music is its own.

PROFESSIONAL QUALITY

A professional synth user would immediately recognise the concepts and facilities in MusiCalc.

It is sufficiently simple, sane and sound for use by the inexperienced hobbyist, and it is sufficiently rich and complex for use by non-electronic musicians.

Those facilities include

- a *control panel* with slider switches
- *waveform selection* for each voice
- *ADSR envelope* controls for each voice
- *gate* synchronisation controls
- *ring modulator* controls
- *pitch* transposers
- filter controls, include low and high-pass bands
- *tempo* and *volume* controls
- a score grid
- a score display for composition via notes and octaves
- built-in ready-to-go tunes to play or edit
- the ability to save further scores
- a variety of *different keyboard scales*

This means with MusiCalc you can ...

1. **compose and edit music**
2. **play it in a variety of different ways (with different time signatures, simulating different instruments, etc)**
3. **save a tune and subsequently reload it to play or edit.**

MusiCalc

MAIL ORDER FORM

MusiCalc 1 Sequencer and Synthesiser **£52 inc P&P**	A professional-grade three-voiced synthesiser with slider controls, modulators, transposers, a score-composition panel and a fully-interactive real-time step sequencer. This allows the user to make and hear changes instantly. Currently available on disk only, but we're producing a cartridge version.
MusiCalc 2 ScoreWriter **£37 inc P&P**	Works with MusiCalc 1 to print out compositions in standard music notation – without you having to know anything about music. Also has two other important functions: can link MusiCalc 1 scores to provide a complex sound (in MusiCalc 1 alone you can score only 240 notes – which can be repeated, but which can't vary; MusiCalc 2 allows compositions to link up to 32 of those scores in various combinations). And MusiCalc 2 can interface to external devices – including another 64 running another MusiCalc: or conventional electronic instruments such as drum machines and keyboards: or various output devices such as echo machines.
MusiCalc 3 Keyboard Maker **£37 inc P&P**	Customise the 64's keyboard to play your own scales. 80 preset scales are provided with the package (MusiCalc 1 itself already comes with 17); scales can be transposed, combined, moved ... or you can create your own. MusiCalc 3 works with MusiCalc 1 but can also be used independently.
MusiCalc Templates **£22 each inc P&P**	MusiCalc 1 has 32 pre-recorded tunes in a variety of styles – the Templates extend this by providing even more, 32 scores and 32 'sounds' per disk which can be used in any combination. Try them as the basis for your own compositions, or work with them from the slider controls to alter the sound and timing. Templates available now include Latin/African rhythms, New Wave/Rock, and the Beat File – a Template of preset drum rhythms for you to add melody, everything from 4/4 rock 'n' roll to 6/8 swing.
MusiCalc Demos **tape £3, disk £6**	If you're reluctant to commit yourself to MusiCalc outright, we do offer a couple of demonstrations – an audio tape for £3.00 and a CBM 64 disk at £6.00. If you take one of these and subsequently order MusiCalc 1, the price of the demo can be set against the price of the full-scale package.

Product	price	quantity	value
MUSICALC 1	£52		
MUSICALC 2	£37		
MUSICALC 3	£37		
Template 1 (Latin)	£22		
Template 2 (Rock)	£22		
Beat File (Drums)	£22		
SPECIAL! all the above	£160		
SPECIAL! MUSICALC 1, 2 and 3	£110		
MUSICALC demo disk [refundable]	£6		
MUSICALC demo tape (audio) [refundable]	£3		
TOTALS			

prices include VAT and UK P&P.
Add overseas postage of £1.00 per item if appropriate:

TOTAL ENCLOSED

Mail your order with your payment to:
MusiCalc UK, The Metropolitan, Enfield Road, London N1 5AZ

NAME: .....

ADDRESS: .....

.....

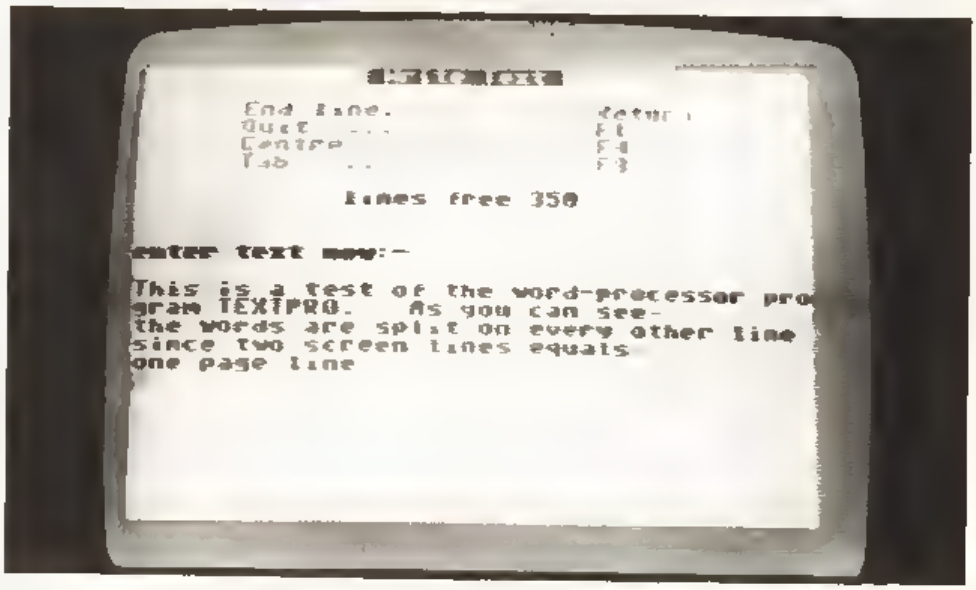
☐ Tick here if you'd like to go on our mailing list for future MusiCalc announcements

in cheap wordprocessors, yet it is that facility that makes a good WP program so useful. Some of the cheap WPs limit you to editing a single line at a time by re-typing the whole line. This program is better than that in that there is a 'BBC Computer' style Copy facility which allows you to copy the old line using the 'cursor right' key, so you only retype or delete the incorrect characters.

The drawback, as with nearly all cheap WP programs, is that there is no way to add another word on a line if it is already full. If you missed out a word and the sentence doesn't make sense without it, you have a problem. For example, I wanted to add the single word, 'of' to a line because it made a sentence sound better. After having to alter the following six lines as well I gave up in despair. To have added that one small word would have meant re-typing the entire bottom half of the document.

Although that was undoubtedly a 'worst case' situation it does reveal the problems of these cheap programs. Also after editing a line you are returned to the main menu each time. You therefore have to reselect the edit option, then scroll through the document from the beginning to get back to the point you had reached before you did the edit. This can be very annoying if you are editing the final page of a 300 line document.

But Textpro does have one 'extra' editing command that many cheap WPs fail to include, and that is a Move option. Textpro allows you to move one line at a time to anywhere else in the document, not as good as a block move facility, but certainly better than nothing. There are also options to Insert or Delete whole lines. Single words or phrases can only be deleted by not copying them on the 'change line' option, you are then left with a gap at the end of that line. There is no 'copy line' command so you cannot duplicate text already written elsewhere in the document.



Saving and loading text

As mentioned in the introduction, the tape version can only be used with tapes for storing documents. The disk version has a replace option for an existing file as well as saving to a new file, although knowing the bug in the 1541 disk drive I would not recommend using this option. There are three other disk commands available: formatting a disk, deleting a file and reading the directory. The last of these does not overwrite any text in memory and is therefore quite useful.

The manual

This consists of a nine-page folded sheet that fits in the cassette box (or eight A4 sheets for the disk version). The manual is quite adequate for a program of this type, but does not make for easy reference. You sometimes have to read the thing a couple of times to find out what to do in a given set of circumstances. However, this will only really be a problem initially since there are not that many facilities to learn.

Conclusions

At this price you just can't expect miracles, yet Textpro is capable of dealing with exactly the type of document which someone buying this program is likely to want to produce; home correspondence and general notes, for example. The limited editing facilities could get very frustrating if you need to do anything fancy – so don't try. I would rate this WP as adequate rather than outstanding and anyone who had tried 'the real thing' would find it very difficult to come back to. However, as a starting system, it's a thoroughly respectable offering and you won't go too far wrong with it, especially with this latest version.

FOR

- Price

AGAINST

- Very limited facilities overall
- Limited editing facilities
- Limited printer options
- Text does not appear on screen as it will be printed

Under review	Textpro
Description:	Wordprocessor for 64
Supplier:	US Gold/Centresoft
Address:	Unit 10 The Parkway Industrial Centre Heneage Street Birmingham B7 4LY
Telephone:	021-359 3020
Summary:	Very cheap, but limited, useful for home applications
Price:	£9.95 (tape) £12.95 (disk)

Letter from America

The changing American computer scene

Dan Gutman reports

Dan Gutman keeps his finger on the pulse of the American computer scene with his syndicated Computer Report Today. But he's taking time out to start a regular column of news, views and gossip about the Stateside Commodore scene, especially for Commodore User. This month – the Commodore 16 and Plus/4 machines hit the US market. Are they what the Americans really want ... and is there something better?

Welcome to America! It's interesting yet pretty confusing that two nations that speak the same language, listen to the same music and feel so close to one another would be so different when it comes to computers. Over here, for instance, 80% of Commodore 64 users use a disk drive to load programs. I'm told that in England, most programs are on tape. Virtually no tape is used here – I reckon Americans probably don't have the patience for it.

In the US, the Vic-20 is practically a dead computer now. Oh, there are plenty of them out there (over two million, they say), but most of them are stashed away in closets. When the 64 was released back in September of 1982, millions of people "stepped-up" from the Vic. And right now, when a new program is released in the US, it's usually made primarily for the 64 and the Apple line before any other computers. There is practically no new software for the Vic anymore.

And the 64 looks like it's peaked too. It's been an even bigger success than the Vic – Commodore has sold over three million Commodore 64s and they're still cranking out 100,000 a month (that's one every five seconds, by the way). The price has dropped as low as $179 (about £150). But the computer industry changes fast.

The word on the street is that this will be the last big Christmas selling season for the 64 here in the States. It's a great little machine, but there is a definite movement away from the "cheap" computers and toward the more expensive and powerful ones over here. I think people just feel that any machine that is so inexpensive can't really do much. Apple's new and expensive Macintosh is what Americans are lusting for now – it's powerful, it features incredible graphics, and it's the easiest computer in the world to use.

So What's Next?

As you already know, Commodore has three new computers that they hope will carry on the tradition of the Vic and 64. I had a chance to play with the first one, the Plus/4. You may remember when Commodore announced a new machine called the 264 about a year ago. Well, that's basically what the Plus/4 is. It has been criticized in advance both here and in Britain for being "no improvement on the Commodore 64" but it's a different kind of computer to the 64. You don't need to be told, but the 64 featured good graphics and spectacular sound – just perfect for computer games, simple word processing, and some home programs. The Plus/4 is being billed as Commodore's "productivity" computer.

It's easy to criticise the Plus/4. It lacks the sprite graphics of the 64 and its sound chip can only handle two simultaneous music tracks. The memory 64K RAM, it isn't a byte more than the 64. But, when you turn on the Plus/4, you see "60,671 bytes free." The 64 with all its 64K only gave us a meagre 38,911 bytes to work with.

Commodore reckons the Plus/4's biggest attraction is its built-in software – you remember, the word processing program, file management, and financial spreadsheet this $300 machine comes with. These programs can even "talk to each other". You can, for example, use the top half of the screen to process words and the bottom half to calculate a budget. Then, when you're ready to print, you can drop the spreadsheet or graph right in the middle of your manuscript. Obviously, the Plus/4 is intended as a machine for small businesses more than anything else.

Commodore is also introducing the Commodore 16 here in the States, which seems to fit somewhere between the Vic and the 64. It has 16K, will sell for around $100, and they're planning to call it "America's Learning Machine." My sources, however, tell me that the 16 will be pushed more on your side of the Atlantic than mine.

Amiga, Amiga

But the most exciting news out of Commodore is the top secret "Lorraine" computer. About a years ago, I heard from a reliable source that a little company named Amiga had developed a computer that would "blow away" the rest of the industry. I didn't put much stock in it, because the only product Amiga had produced so far was a ridiculous game controller called The Joyboard that you'd stand on and manipulate with your feet. Then computer was code named "Lorraine" after Lorraine Morse, Amiga president Dave Morse's wife.

Word began to sneak out about Lorraine (the computer I mean, not Dave's wife). It was put together by some "ex Atari hotshots" and was powered by the Motorola 68000 microprocessor. It would have built-in disk drive, 128K, built-in software, resolution up to 600 x 400 and sell for under $1000. At the last Consumer Electronics Show in June, I saw the Lorraine behind closed doors at the Amiga booth. The graphics were indeed remarkable – they were showing some animations that looked like they had been done on a million dollar machine.

The rumour was that Atari was going to buy Amiga outright and release Lorraine as Atari's "high-end" (expensive) computer. But during negotiations, Commodore founder Jack Tramiel bought up Atari, and Amiga decided against the deal. The next thing you know, Commodore turned round and purchased Amiga, so now it looks as though Commodore will be releasing Lorraine. The lawsuits began to fly – Atari sued Amiga for reneging on the deal and taking the technology to Commodore. They'll be in court for a while yet.

So now the people that stepped up from the Vic 20 to the Commodore 64 can step up to the Lorraine. It may be what America is looking for – a Macintosh that Joe Computer Owner can afford. Lorraine (or whatever it will be called) won't be available for awhile, but I'll keep you posted on it – along with any forthcoming hardware and software from Commodore. Catch ya' next month.

You really can't go wrong with any Level 9 game as they are really brilliant

CRASH MICRO SEPT '84.

"Whichever machine you own, if you have the vaguest tendency towards adventure playing then you must try one of these games (unfortunately you'll probably end up wanting to buy the lot!)."
Computing Today, August 84

"To me, all Level 9 adventures create a remarkable atmosphere because the descriptions sound so life-like. This is where so many other adventures fail."
Crash, July 84

"But it's not just the size of the game it's the quality as well that is astonishing ... ... scenes to fire the imagination."
PCG, April 84

"As in all Level 9's adventures, the real pleasure comes not from scoring points but in exploring the world in which the game is set and learning about its denizens."
Which Micro?, February 84

"(LORDS OF TIME). As we have come to expect from Level 9, the program is executed with wonderful style ... Highly recommended."
PCW, 1 February 84

"I thoroughly recommend these Adventures they are excellent value for money. No self-respecting Adventure-addict should be wi them. I believe Level 9 are producing a of Adventures which should be regarded classics."
Atari User.

"These programs run very fast and th no frustrating pauses. Level 9 Adventure superbly designed and programmed, the contents first rate. The implementation of Colossal Adventure is nothing short of brilliance; rush out and buy it. While you're at it, buy their others too. Simply smashing!"
Your 64, June 84

"Level 9 — arguably the producer of the best adventure games in the UK — has done it again. LORDS OF TIME is a sparkling addition to its stable of winners."
Acorn User, July 84

"(SNOWBALL). This is another imaginative, massive-scaled immensely enjoyable adventure from those experts down at Level 9 Computing."
Your Computer, March 84

Owners of cassette games can upgrade to disk. Send your cassette to us with £4.50 to cover costs.

NEW

Level 9's epic adventures are now here for the AMSTRAD. Disk versions are available for the BBC (40/80 track) and Commodore 64. And, best of all, RETURN TO EDEN is ready. It's been a busy month!

RETURN TO EDEN is the long-awaited sequel to Level 9's top-selling Snowball adventure. Now it's here with 220 locations, masses of puzzles, and with pictures on the CBM and Spectrum versions.

Available from W H Smith and good computer shops everywhere. If you can't find dealer details, contact Level 9 adventures to get him to contact us or Centresoft, Microdealer, Dk'Tronics, Ferranti, Craig, Leisuresoft, Lime Tree, VL, PCS, R & R or Wonderbridge.

	Cassette £9.95	Disk £11.95
1	**COLOSSAL ADVENTURE** The classic mainframe game with 70 dungeon rooms	
2	**ADVENTURE QUEST** An epic journey through Middle Earth	
3	**DUNGEON ADVENTURE** A massive game which completes the Middle Earth Trilogy	
4	**SNOWBALL.** Save the interstar freezer Snowball 9 in a huge space adventure with over 7000 locations	
5	**RETURN TO EDEN** SF adventure on the weirdest planet ever. The sequel to Snowball though you don't need to have played this	
7	**LORDS OF TIME.** A humorous romp through World History	

I ENCLOSE A CHEQUE/PO FOR £9.95 EACH (CASSETTE) OR £11.95 EACH (DISK) FOR BBC OR CBM 64

My name

My address

My micro is a

(one of those listed below with at least 32K of memory)

Contact

LEVEL 9 COMPUTING

Dept 229 Hughenden Road, High Wycombe Bucks HP13 5PG

AMSTRAD BBC CBM64 SPECTRUM MTX ORIC 1 LYNX NASCOM ATARI

Home Computer Centre

208 Aigburth Road, Liverpool L17 9PE

Tel 051-727 8050

ASTERFRET TRADING LTD INCORPORATES HOME COMPUTER CENTRE

VIC 20 and CBM 64 are reg d trade marks of Commodore Business Machines

Special Offer
5% Discount
on orders of two or more products

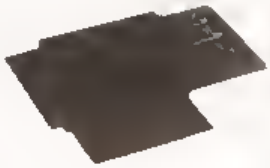
All products are fully guaranteed

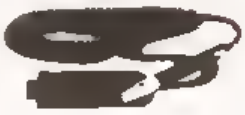
For the VIC-20

16K SWITCHABLE RAM PACK	£35 95
32K SWITCHABLE RAM PACK	£49 95
64K RAM PACK + 2K EPROM	£64.35
2 SLOT MOTHERBOARD	£ 6.85
4 SLOT SWITCHABLE MOTHERBOARD	£28.95
5 SLOT SWITCHABLE/ BUFFERED MOTHERBOARD	£34.45
40/80 COLUMN CARD	£64.95
PIXSTIK (inc. Paintbox & 3 Games)	£29.95
QUICKSHOT II JOYSTICK	£12.95

For the Commodore 64

4 SLOT SWITCHABLE MOTHERBOARD	£29 95
5 SLOT SWITCHABLE/ BUFFERED MOTHERBOARD	£42 50
80 COLUMN/GRAFICARD	£68.95
PIXSTIK (inc. Paintbox & 3 Games)	£29 95
QUICKSHOT II JOYSTICK	£12.95





NEW

COMMTALK £47.95

All allophone speech synthesiser from which extremely convincing words can be assembled.

NEW

MORWOOD DATA RECORDER £29.95

Specially designed for computer use.
Compatible with Spectrum, Dragon, Oric and Lynx home computers.
Compatible with VIC 20 and Commodore 64 computers when used with the custom designed interface.

ORDERS MAY BE SENT DIRECTLY TO OUR MAIL ORDER DEPARTMENT AT THE ABOVE ADDRESS OR WRITE/PHONE FOR FURTHER DETAILS.

Payment by cheque, P.O. or Access.

Please allow up to 21 days for delivery All prices include V A T postage and packing

The 64 ought to be an excellent computer for games – and fortunately some suppliers are indeed taking advantage of that. Others aren't. Here's this month's crop of reviews.

How do we assess games? Basically we play them – which may sound obvious, except that all the reviewers have seen so many games that they can apply a bit of comparative experience to the evaluation.

We rate games out of five for each of four criteria. **Presentation** means how well the thing is packaged and how good it looks on the screen: dull graphics and poor sound get marked down here. **Skill level** refers to how much skill (of whatever kind) is required to play the game – so if pure chance is involved, the game gets a low mark. (But don't dismiss it on that: some 'chance' games are great fun.) **Interest** is an answer to how well the game did at maintaining the reviewer's interest in it. And **Value for Money** is obvious enough: it's our overall conclusion about how it compares with other games and whether we'd buy it ourselves.

SCREEN SCENE 64

CAVERNS OF KHAFKA

Joystick only
Price £8.95

The need to remember eight joystick positions, sometimes in concert with the fire button, to control fifteen actions does not detract too much from the enjoyment of the game, for after a while there is no need to stop and cogitate, as the correct responses come more or less naturally. What ruins the game for me is the fact that tumbling colossal boulders and free-falling rocks are stopped dead in their tracks whenever you fire your gun, thereby making the action very disjointed.

For starters the macabre atmosphere conjured up is spot-on. You guide the explorer (Indiana Jones?) through the Egyptian burial chamber (noting the four-way scrolling as you go). Scarab beetles and bats prowl around, overlaying creepy-crawly sounds to the grim music . shoot 'em! Bubbling pools of obnoxious lava will have you leaping . be careful! But don't bump your head, crawl where necessary, yet you are allowed to fall up to twice your height without coming to grief.

Down to business: you must collect five golden seals and place them in the template. When the last has been successfully placed you are transported to a chamber containing the Sphinx; touch her forehead before the guards rob you, then receive the points. Overall I feel ambivalent about this one. It is original and atmospheric but it certainly has it's flaws. *LS*

Cosmi/US Gold

Presentation:	■■■□
Skill level:	■■■■
Interest:	■■■□
Value for money:	■■■□

CASSETTE 50

Joystick only
Price £9.95

As is always the problem when cramming so many games on to one small cassette, something has to give, and in this case it is the quality of the games.

Just about every type of game that has been thought of has been included – maze, arcade, missile, tactical and logic – to suit most tastes in computer game playing. However, they are very much on the basic level and as such are really only suitable for the younger members of the family. However, that's not to say you won't have fun trying them all out before the kids get hold of the cassette and you don't get a look in from them on.

WG/PR

Cascade

Presentation:	■■■□□
Skill level:	■□□□□
Interest:	■■□□□
Value for money:	■■■■■

DALEY THOMPSON'S DECATHLON

Joystick only
Price £7.90

A pseudo-expanded screen (the border is variously coloured to match the action area) gives some idea as to the care taken with the graphics which are in fact very effective. The long jump sequence is first class - right down to the adjudicator with the measuring tape. As for the remainder, I found the throwing events far preferable to the painful bouts of running. Painful? Well you have to shake your joystick vigorously from side to side to gain speed after a while this becomes very unpleasant. The day when you need to do a Jane Fonda simply to play a video game has arrived.

Failure to qualify in any of the ten track and field events results in the loss of a life. The pertinent times and distances to achieve in order to pass, along with the points scored to date, are shown at the top of the screen. If you are a dedicated Daley Thompson fan, wish to take part in athletic events by proxy or are extra keen on unorthodox joystick actions then arrange for a demo . don't buy on spec! After this program had given me a workout I was utterly sick of it. *LS*

Ocean

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■□□□
Value for money:	■■■■□

DALLAS QUEST
Keyboard only
Disk only
Price £9.95

To the timepid adventurer the prospect of venturing into the dark corners of Southfork might seem like immersing oneself in a 'Mills and Boon' romance novel, but this could not be further from the truth.

The story unfolds thus: you are lured by Sue Ellen to uncover a missing map which gives the location of a multimillion dollar oil field. Various obstacles are placed in your path including nasty old 'JR' himself. Along the way you can collect clues, some slightly more cryptic than others, and pick up various objects and discard them as their usefullness becomes redundant.

Dallas Quest is a graphical adventure each location has its own graphical representation which is accessed from disk each time you tell the computer that you wish to move (which only takes a second or two). That means cassette users will either have to buy a disk drive or content themselves with other graphical adventures.

The displays are created in about two to three seconds and progress along the path of success seems to be less of a frustration than with some other graphical adventures although this is not to suggest that the solution is easy. The game has a 'save' facility. Obviously that's essential for this type of game and it's obviously easier by the use of disk.

The presentation is very impressive, not only graphically and musically but also in the sense of humour which has been injected into what might at first seem a mediocre scenario. It is only one of the few games which makes greater use of the Commodore disk drive and should provide hours of fun and frenzied activity for all the family. *SBJ*

Datasoft

Presentation:	●●●●●
Skill level:	●●●●●
Interest:	●●●●●
Value for money:	●●●●●

THE EVIL DEAD
Joystick only
Price £6.99

And now for something not completely different: fundamentally this is a mayhem merchant's, monster-mashing mazurka with an element of strategy added. If you soak up the demo with the 'story so far' scrolling by and the morbid organ music (sounds like an undertaker having a rave up – quite good) then yes, the game does have atmosphere. But skip the intro and it's just another maze game with a dash of spice. Don't expect chunks of flesh or buckets of blood.

Having arrived at a decaying shack you discover it has a curse, the Spirit of the Evil Dead loves to mutate resident sweet, innocent humans into green abominations. As you dash round the three-screen-length maze slamming the doors and shutting windows to keep the spirit out, others keep blowing open.

Of course the ghost gets in eventually and works his way with your chums who in turn set their sights on you. To eliminate your erstwhile mates you have to slice them up then deal with the dismembered joints. Score enough points and a book appears, grab it and throw it into the fire to win the game.

The sound effects are o.k. while the action is average: ignore the hype. Likely to prove interesting to ace maze travellers. *LS*

Palace Software

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■
Value for money:	■■■■

FLAK
Joystick only
Price £14.95

The game starts with a very impressive title screen with the word *Flak* in large letters. It is a shoot-em-up where you pilot an aircraft over enemy territory to knock out their headquarters. The enemy has other ideas and not surprisingly resents your attempts to destroy their base. Enemy missiles are fired in all directions: especially yours, from turrets which open up, shoot and close again.

Despite frustrating hours of playing I could not get as far as the enemy base even on the beginner level. The scrolling of the screen as you move through the defences is very smooth but the graphics had a slightly coarse look, possibly as this is a conversion from the Atari.

Sound was slightly disappointing and the explosion noises a bit feeble. There are two skill levels described as beginner and normal. Impossible and suicidal would be more fitting: this is one tough game! Only available on disk, Flak takes longer to load than almost any other disk game I have ever seen. While loading there is a depressingly slow on screen countdown of numbers of blocks to go. £14.95 is a lot to pay for a game unless it is really exceptional – Flak is merely good. *DG*

Funsoft US Gold

Presentation:	●●■■
Skill level:	●●■■
Interest:	●●■■
Value for money:	●●■■

GRABBER
Joystick only
Price £8.00

Not one but two mazes are displayed on each screen, both populated by pesties out for your hide. While you are tidying up the place by taking the 'bones' to the central reservation, indestructible blue monsters keep popping up trying to undo your efforts before setting out on your trail. You may switch at will between the two sectors via the fire button, tactically avoiding destruction or perhaps to complete the collection process.

Four power pills (what else?) are divided between the two mazes giving you the power of death over the brown meanies for a limited time. When all eight slots have been successfully filled another of the ten boards pops up, with the occasional no-chaser bonus board interspersed. To rack up a hefty score on the latter, some nifty board switching is needed as there are plenty of dead ends in each maze ... it's not just a points hand out.

The background melody is appealing but for extended stretches of play the volume control on your TV will need tweaking. *LS*

Microdeal

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■

INTERDICTOR PILOT
Keyboard only
Price £17.95

At last, a space flight simulator. With this pricey offering you buy the 48 page manual and get the tape free. Apart from explaining the function and purpose of the gauges and controls, the manual gets to grips with the rationale behind each device, along with the relevant scientific principles. In fact everything relating to a sophisticated, interstellar, 21st Century, death-dealing interceptor is laid bare.

Overwhelming? Of course it is, but there is a special simulator mode which allows slow motion

practice flights, so that potential pilots may make steady progress and get the feel of things. Naturally you will want to view enemy craft in close-up on the VDU, which is fine as long as the opportunity is taken to familiarise yourself with the various operational systems and the inevitable malfunctions concomitant with cosmic combat. Then, of course, there follows the small matter of successfully landing back at Star Base.

You meet five different types of craft - not all are necessarily hostile. Identification rests on interpreting the unique 'transponder' and sometimes just old fashioned visual inspection. Laser beams or photon bolts, the choice is yours, either way make use of the excellent target direction -indicator /gun sights.

There is an absolute plethora of indicators and banks of flashing lights to drool over; all requiring practical experience to interpret speedily and accurately, yet everything has a genuine function. For example, your potential top speed, actual speed and that of the potential enemy is displayed, plus a doppler gauge to disclose the relative velocity of both ships. I should state that a joystick can be used for direction if preferred.

A disk version is obtainable for £2 extra which makes this program, to the uncommitted, seem expensive. But to the simulator buff it should prove an investment. After all there is an endless stream of missions on offer; things can only get better as your prowess improves and you opt for longer flights. Believe me you really are the Interdictor Pilot, not just a key pusher. *LS*

Supersoft

Presentation:	●●●●●
Skill level:	●●●●●
Interest:	■■■■■
Value for money:	■■■■

PERCY THE POTTY PIGEON

Joystick or keyboard
Price £7.95

Apposite music is provided with 'All Creatures Great And Small' and that ever popular mega-hit 'The Death March'. The graphics are bound to impress; the pigeon's territory covers several screen widths and is shown in 3-ply so that as you move and the screen scrolls the impression given is very much that of 3D. A busy road, trees, hills, shops and a castle are depicted. If you are sharp eyed the beginnings of a nest will be espied.

The game revolves around collecting twigs from the roadway to complete the last structure whilst avoiding various hazards, according to the level. Pigeon crushing cars are the most obvious danger with low flying aircraft, hot air balloons, leaping cats and ferrets (very realistic); all these are death dealers whereas sparrows will merely steal your twigs. Eat butterflies for extra points and bomb some of your enemies with what are discreetly termed 'explosive eggs'. It isn't an easy task, especially as controlling the flight of Percy requires some nifty finger-work.

Unfortunately, after the initial impact of the delightful graphics had subsided, my interest in the actual game took a nose dive, snatching nesting material from the jaws of death doesn't seem very substantial fare to me, even through ten levels. *LS*

Gremlin Graphics

Presentation:	●■■■■
Skill level:	■■■■■
Interest:	■■■■
Value for money:	●●

SOFTWARE ON Commodore 64

BC BASIC *At last the ultimate has arrived – a complete 9k extension in a ROM pack. Over 97 new or modified commands and functions have been added and because they have not been fully tokenised, the speed of operation is not affected. Abbreviations may also be used. The main areas of enhancement are* ***HI-RES, SPRITES, TEXT GRAPHICS, UDG, SOUND, MACHINE CODE AIDS, STRUCTURED PROGRAMMING, I/O and more.*** *For full spec call us on 073 57 4335* **£57.50** inc VAT

See us on PRESTEL * 2473222 # Telex 849462 TELFAC KUMA
COMET KUMA TELECOM GOLD KUM 001

PAINTPIC

The complete colour drawing and painting application using multi colour bit map. This outstanding program features.
Pen, Brush and Text Modes; Curved Shapes; Straight Shapes; Pen and Brush Fills; Settable Colour; Horizontal, Vertical, Diagonal, By Dot, Brush Width, Character Moves; Point Moves; Block Moves.
No extra hardware items are needed beyond the basic computer, tape drive and colour TV.
Send for full brochure **£19.95** inc. VAT

Kuma Computers Limited
Unit 12, Horseshoe Park, Horseshoe Road, Pangbourne, Berks RG8 7JW

PHONE NOW (073 57) 4335
or SEND FOR DETAILS

Please tick box ☑ for information required and send coupon to
Kuma Computers Ltd
12, Horseshoe Park
Horseshoe Road, Pangbourne
Berks RG8 7JW

Hardware / Software
☐ COMMODORE 64 ☐☐
☐ SIRIUS ☐☐
☐ SHARP PC 1500 ☐☐
☐ SHARP 700 ☐☐
☐ SHARP A ☐
☐ SHARP 3541 ☐
☐ SAGE 8000 System ☐
☐ APRICOT ☐
☐ EPSON HX 20 ☐
☐ EPSON QX-10 ☐
☐ NEWBRAIN ☐
☐ SPECTRUM ☐
☐ ELECTRONIC MAIL ☐
☐ PRINTERS ☐

NAME
ADDRESS
POST CODE

Converting Basic to COMAL

The complete reference

by Brian Grainger

Following my introduction to COMAL in the April issue of **Commodore User**, *I've had an amazing response to my free offer of public domain COMAL versions – and, many readers have written to say how much better than Basic they have found COMAL.*

But there are still some who argue that having learnt Basic they don't want the effort of getting on top of a new language. This article should encourage those who hold such views to convert to COMAL; it will also help the many Basic programmers using COMAL who want to convert existing program techniques.

One of the aims of COMAL was to be as simple as Basic; indeed, many Basic statements can be transferred to COMAL without change. But there are some differences – which is inevitable since COMAL has more facilities than Basic. In the listing below, the first explanation (italics) is for Basic; the second (bold) applies to COMAL.

Variables

String variables

Each string variable denoted by a '$' following the name (e.g. A$) can hold up to 255 characters.

Each string variable denoted by a '$' following the name (e.g. A$) must be explicitly dimensioned but can hold any number of characters. (e.g. DIM A$ OF 500)

Integer variables

Integer variables are denoted by a '%' following the name (e.g. A%). The amount of storage space reserved is identical to that of a real variable.

Integer variables are denoted by a '#' following the name (e.g. A#). The amount of storage space reserved is less than that for a real variable.

Variable names

The same name can be used for different variable types without confusion – so 'A$' and 'A' are allowed in the same program.

The same name cannot be used for different variable types

Array variables

Array variables default to a dimension of 10 if no explicit DIM statement is given.

An explicit DIM must be given.

Matrices

DIM MATRIX(100,10) will reserve space for 1111 values (100+1 rows by 10+1 columns).

DIM MATRIX(0:100,0:10) will reserve the same space as the Basic. If you are not using the elements in the 0 row and 0 column you can say DIM MATRIX(100,10) as in Basic.

Operators

Integer division

INT(A/B)

A DIV B

Remaindering

*A-INT(A/B)*B*

A MOD B

Relational

<= and =< are both allowed; >= and => are both allowed

<= only is allowed; >= only is allowed

Logical

NOT, AND, OR can be used for bitwise operations

NOT, AND, OR cannot be used for bitwise operation

The printer

Listing a program

OPEN1,4 : CMD 1
LIST
PRINT#1 CLOSE 1

SELECT "LP"
LIST
SELECT "DS"

Inbuilt functions

ASCII value

ASC("A")

ORD("A")

Free memory

PRINT FRE(0)

SIZE

Leftmost 10 characters

LEFT$(A$,10)

A$(1:10)

Rightmost 10 characters

RIGHT$(A$,10)

A$(x,y) where y is the endmost character position and x is endmost -10+1

MID$

MID$(A$,5,3) – return three characters of A$ starting from the fifth

A$(5:7)

Random integer between x and y

*X+INT((Y-X+1)*RND(0))*

RND(X,Y)

AT LAST MICROMEGA KINGS OF SPECTRUM GAMES BRING THEIR QUALITY TO THE COMMODORE 64.

MICROMEGA

SINN GENIE

Available through good computer stores everywhere

£8.95

Free the golden city from the clutches of the wicked Afreet. Battle his guardian devils force entry to the palace reveal the magic jar and finally do battle with the genie himself! A unique pure arcade challenge for the CBM64 owners

Files

Open a sequential file for reading
OPEN 8,8,8,"(filename),S,R"
OPEN 8,"(filename)",READ

Open a sequential file for writing
OPEN 8,8,8,"(filename),S,W"
OPEN 8,"(filename)", WRITE

Open a cassette file for reading
OPEN 8,1,0,"(filename)"
OPEN 8, "(filename)", UNIT 1,0,READ

Open a cassette file for writing
OPEN 8,1,1,"(filename)"
OPEN 8,"(filename)", UNIT 1,1,WRITE

Open a sequential file for appending
OPEN 8,8,8,"(filename),S,A"
OPEN 8,"(filename)", APPEND

Open a relative file with record length of (length)
OPEN 8,8,8,"(filename),L"+chr$((length))
OPEN 8,"(filename)",RANDOM (length)

Open a file to the printer
OPEN 4,4
OPEN 4,"",UNIT 4,0,WRITE

Open a file for formatted output to the printer
OPEN 4,4,1
OPEN 4,"", UNIT 4,1,WRITE

Read from a sequential file
INPUT#8,A$
INPUT FILE 8: A$

Read part of sequential file
PRINT#15, "P"+CHR$(8)+CHR$(12)+CHR$(0)+CHR$(3)
INPUT#8,A$ – this will position the pointer to a relative file at record 12 byte 3 and read from that point up till the next chr$(13) into A$. It assumes channel 15 is open to the disk and that the relative file has been opened with secondary address 8.
No such problems in COMAL which is
INPUT FILE 4,12,3:A$

Write to a relative file
Similar except PRINT#8, A$ is used
In COMAL it's PRINT FILE 4,12,3: A$

Write to a sequential file
PRINT#8,A$
PRINT FILE 8: A$

Loading and saving programs

Load program from cassette
LOAD"(filename)"
LOAD"(filename)",1

Load program from disk
LOAD"(filename)",8
LOAD"(filename)"

Save program to cassette
SAVE"(filename)"
SAVE"(filename)",1

Save program to disk
SAVE"(filename)",8
SAVE"(filename)"

Load and RUN a program from disk
LOAD"(filename)",8: RUN
CHAIN"(filename)"

Disk handling

Command format
OPEN 15,8,15. PRINT#15,"(disk command)": CLOSE 15
PASS"(disk command)". The syntax of the disk command is identical for Basic and COMAL

Read a disk error message
OPEN 15,8,15: INPUT#15,ER,ER$,T,S· PRINT ER;ER$;T,S: CLOSE 15
STATUS

Read disk status after file access
INPUT#8,A$. INPUT#15,ER: PRINT ER (assumes channel 15 open)
INPUT FILE 8: A$
PRINT STATUS (8)

List a disk catalogue
LOAD"$",8. LIST (destroys program in memory)
CAT (does not destroy program in memory)

Pot Pourri

Setting a truth value of false
NO=0
NO=FALSE

Setting a truth value of true
NO=–1
NO=TRUE (in COMAL this has value +1)

One-line FOR statement
FOR I=1 TO 10: PRINT I: NEXT
FOR 1=1 TO 10 DO PRINT 1

I hope this will prove valuable in using COMAL rather than Basic: in addition to the above there are the structured programming modifications, but these were covered in the April issue. And all other aspects of Basic carry over to COMAL without change – so it's not really learning a new programming language at all.

A word of caution, however. The public domain versions of COMAL do not include GET, STR$, VAL, WAIT, USR or VERIFY. They can of course be simulated by writing specific procedures (although a procedure to GET from a disk file is not so easy!) The COMAL cartridge for the Commodore 64 will include the first three of these facilities, and linking machine code to COMAL will be much more comprehensive than with Basic.

If this article has persuaded you to try to COMAL and you want a copy, my offer still stands. COMAL is available for the Commodore 4032, 8032, 8096 and 64 computers (not Vic): I can supply copies on 4040, 8050 or 1541 disk formats: or on cassettes (C-60 at least, please), but I prefer to send disks if possible. Send your disk or cassette, with the return postage for 150 gms – preferably in stamps or international Reply Coupons (worth 20.5p each) if a resident of Eire or abroad – with details of your computer system, your name and address to: Brian Grainger, 73 Minehead Way, Stevenage, Herts SG1 2HZ.

'IT SAYS HERE "MR T SOFTWARE IS GENUINELY EDUCATIONAL IN THE NICEST SENSE."'

'ISN'T THAT JUST WHAT I'M ALWAYS SAYING?'

Mr T educational software from Good Housekeeping, is the most exciting way to introduce your children to the world of learning.

But you don't have to take our word.

Amongst a host of favourable reviews of Mr T, the Times Educational Supplement, no less, was moved to say: 'Bouquets should be sent to Good Housekeeping for a productive collaboration between teachers and programmers.'

What inspired them to heap such lavish praise?

For a start, Mr T combines sound educational principles with the colour, fun, and excitement of computer graphics.

('Brilliant stuff for 3 to 6 year olds' was The Lady's verdict.)

All the games are designed to capture the child's imagination, with levels of difficulty increasing in line with ability.

But the real beauty of Mr T is that you and your children operate the games and learn together, opening up further areas of educational play away from the computer.

Mr T also provides a useful introduction to computers, each pack including full loading and operating instructions.

All the areas appropriate to your child's early learning are covered: numbers, letters, shapes, measuring, money, reading and telling the time, with at least two games per pack.

All the games are compatible with Commodore 64, Spectrum 48K and BBC B computers.

To sum up Mr T, we'll leave it to a seven year old boy interviewed by the Daily Telegraph: 'The best thing I've seen in my life' was his verdict.

For full details write to:
Ebury Software,
National Magazine House,
Broadwick St., London W1V 2BP.

Available at all major high street computer stockists.

MR T EDUCATIONAL SOFTWARE

The best start in life you could give your child.

123abc FROM GOOD HOUSEKEEPING

50p

For the price of ten aliens you can communicate with far friendlier b

Imagine the benefits of being able to communicate with other computer users.

Of letting your computer save money on new software as well as helping improve your programming skills.

And wouldn't you be better informed if your computer kept you up to date with new developments in the computer world.

Just a few of the ways in which our Modem helps a Commodore 64, become more useful to you.

Fitted in seconds.

Our Modem is as easy to fit as it is to use. One end slots into your Commodore 64's cartridge port the other plugs into your telephone line.*

Computer Pals.

Once you've installed a Modem you can communicate with all other Commodore 64 Modem owners.

You can leave messages on bulletin boards, sell and swap programs.

You could work together on programs. Discuss recent software releases.

And even play chess.

Now you see it.

You'll be able to see page after page of information from existing systems like Prestel, Micronet† and the exciting new system called Compunet.

Now beings.

Compunet, it's new and unique.

At present Compunet's exclusively for Commodore 64 Modem owners.

It's the most advanced communications system designed for home computer users. At last you can work hand-in-hand with a giant mainframe.

Because you can send and receive information.

This increased interactivity brings the capacity of large computers into your home.

Software galore.

And a lot of it's free. Free games, free education, free information.

Free from hassle too. Because you can now select software from Compunet then save it on to cassette or disk.

What's more, highly prized software from leading companies is on offer, thanks to our Modem's built in security systems.

You'll also be able to pick up useful hints and tips to improve programming skills.

Free tuition.

Now your computer can make a serious contribution to your children's education.

Already Compunet has over 50 free educational packages, with subjects ranging from elementary maths to A-level Physics. And there's up to 10 new packages every month.

Our Modem delivers the goods.

You can already shop via Compunet and make great savings by joining Comp-u-card.

Before long, you will be able to view new property lists, order groceries, organise your banking and even request insurance quotes.

All in addition to a wide range of services currently available through other systems.

Free for all.

If you order a Modem now you will receive one year's free subscription to Compunet.

Representing a saving of £30.

Add to this the reductions you can get on many purchases through Compunet and you can see the obvious values of owning a Modem.

What price the world at your fingertips?

A Modem costs much the same as 10 aliens.

Or, to be precise £99.99.

Which is money well spent, because a Modem continually revitalises your computer.

Making the Commodore 64 a home computer that should never lose its appeal.

You may find our Modem in the shops, if you're very quick.

Alternatively you can avoid disappointment and buy direct from Commodore. Simply complete the coupon, then we'll send you a Modem, plus your year's free subscription to Compunet.

commodore

Commodore Communications Modem,
1 Hunters Road, Weldon, Corby,
Northamptonshire NN17 1QX.

Please send me a Commodore 64 Communications Modem plus a year's free subscription to Compunet (worth £30).

I am enclosing a cheque/postal order for £99.99 (incl. VAT and P&P.) made payable to Vicsoft ☐
I would like my Visa Access card debited. ☐

No. | | | | | | | | | | | | | | | | |

Signature _____

Or please send me further information. ☐

Name Mr/Mrs/Miss _____

Address _____

_____

_____

Registration subject to Compunet's terms and conditions. Allow 28 days for delivery.

Post to Commodore Communications Modem,
1 Hunters Road, Weldon, Corby, Northamptonshire NN17 1QX.

*A new-style BT socket is required.
†Prestel and Micronet require additional subscription charges.

Prestel is a registered Trademark of British Telecommunications. Micronet is a property of British Telecom. Prestel and Telemap Ltd.

MICROPOWER MICROPOWER MICROPOWER MICROPOWER MICROPOWER MICROPOWER

SUPER-FAST LOADING TIME

commodore 64 electron

B.B.C. MICRO

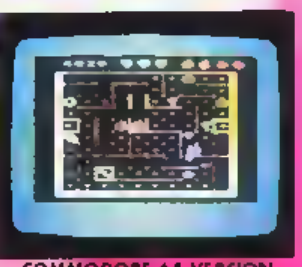
BUMBLE BEE

A FANTASTIC NEW PROGRAM
FROM BRITAIN'S LEADING SOFTWARE HOUSE!

Fly the bee around the grid avoiding the toadstools. Spin the turnstiles to evade the spiders, or coax them into the fireballs. Collect all the pollen to slide back the exit doors to advance to the next insect ridden level.

£6.95 (BBC version £7.95)

Commodore Disk price £9.95



COMMODORE 64 VERSION

WATCH OUT FOR OUR NEW PACKAGING AND CATALOGUE

MICRO POWER

MICRO POWER LTD
NORTHWOOD HOUSE NORTH STREET
LEEDS LS7 2AA TEL. (0532) 468800
SELECTIVE BRANCHES OF BOOTS LITTLE WOODS MENZIES W H SMITH WOOLWORTHS AND AI GOOD DEALERS
AUTHORISED WE PAY 20% ROYALTIES

MICROPOWER MICROPOWER MICROPOWER MICROPOWER MICROPOWER MICROPOWER

ONLY
£34·95
(p&p £2·50)

THE ROTRONICS DR2301 COMPUTER/ AUDIO CASSETTE RECORDER

The Rotronics DR2301 has all the facilities you would expect of a quality audio recorder and also works perfectly with the VIC 20 and CBM 64 computers without any fiddly separate boxes or adaptors. Simply connect the DR2301 directly with your Commodore computer via the lead supplied and you are ready to start. The built-in interface circuitry ensures that SAVEing and LOADing is completely reliable – even when using commercially produced software. The DR2301 also allows the computer to sense when the PLAY key has been depressed.

Additional features are auto-stop, tape counter, in-built microphone and foldaway carrying handle. The DR2301 is also compatible with the ZX81, Spectrum and many other popular home computers.

The DR2301 will take its power from the computer (Commodore only), mains adaptor (supplied) or internal batteries. Each unit carries a full 12 month guarantee.

Superb accessories for Commodore from Rotronics

THE ROTRONICS PORTABLE CASE

Here is the ideal portable work station for home, school or work. Specially made for most home microcomputers, it contains your VIC 20 or CBM 64 within a smart executive style case with removable lid for convenience in use.

The individually tailored foam insert securely protects your micro and cassette recorder (C2N or DR2301) during transit. Additional storage space in the lid holds manuals and up to twenty cassettes. A scalpel is provided to modify the insert for expansion units and an alternative insert can be supplied if you change your hardware in the future. The case is also available with uncut foam inserts.

All components remain fully operational within the case via inter-connections routed between the double layers of foam, so there are no unsightly leads.

The case has been designed for easy use with each component positioned for convenient operation. The overall dimensions are 138mm x 725mm x 363mm.

ONLY £34·49 (p+p £2·50)

ORDER FORM

Please send (enter as appropriate)

___ Rotronics Computer/Audio Cassette Recorder(s) at £36 95 each (inc p+p) _____

___ Rotronics Portable Case at £36 99 each (inc p+p) for VIC 20/CBM 64* with C2N/DR2301* or Uncut Foam _____

Trade Enquiries Welcome
All prices inclusive of VAT TOTAL £ _____

☐ I enclose a cheque/PO* for £ _____ made payable to SMT

☐ Debit my Access/Barclaycard* account no

(*delete as applicable)

Signature

Name

Address

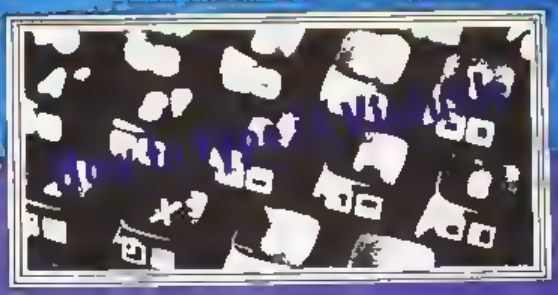
Send to (no stamp required)
SMT, FREEPOST, Greens Norton, Towcester, Northants, NN12 8BR

Please allow 28 days for delivery

VISA Access

SMT

VIC 20 and CBM 64 are registered trademarks of Commodore Business Machines



How we reproduce listings

We have two methods of presenting listings. When we can, we run them through a converter program that replaces the hieroglyphic control codes with more meaningful symbols.

When you see..	It means ..	And you ..
[CU]	cursor up	press the cursor up key (shifted)
[CD]	cursor down	press the cursor down key
[CL]	cursor left	press the cursor left key (shifted)
[CR]	cursor right	press the cursor right key
[HOM]	cursor to the top lefthand corner	press the HOME key
[CLS]	clear	press the CLR key (shifted)
[DEL]	insert	press the INSert key (shifted)
[BLK]	change to black	press the BLK key (CTRL and 1)
[WHT]	change to white	press the WHT key (CTRL and 2)
[RED]	change to red	press the RED key (CTRL and 3)
[CYN]	change to cyan	press the CYN key (CTRL and 4)
[PUR]	change to purple	press the PUR key (CTRL and 5)
[GRN]	change to green	press the GRN key (CTRL and 6)
[BLU]	change to blue	press the BLU key (CTRL and 7)
[YEL]	change to yellow	press the YEL key (CTRL and 8)
[REV]	reverse on	press the RVS ON key (CTRL and 9)
[OFF]	reverse off	press the RVS OFF key (CTRL and 0)
[SPC]	space	press the space bar repeat the specified number of times

[C<key>] **press specified key together with CBM key**

[S<key>] **press specified key together with SHIFT key**

When you see any of these codes prefixed by a number, you must press the appropriate key the same number of times

for example **[3SPC]** means – press the spacebar three times
or

[5CD] means – press the 'cursor down' key five times

These listings we generally run out on a letter-quality printer, though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer, in which case you may see the standard control codes

```
CLR                .   ▚   (REVERSED HEART)
HOME               . .  ▒   (REVERSED S)
RVS On             ...  ▒    REVERSED P)
RVS OFF            .    ▒    REVERSED UNDERSCORE)
CURSOR UP          .    ○    REVERSED SHIFTED ●
CURSOR DOWN        .    ▒    RE+ERSED O
CURSOR LEFT        .    ▒   REVERSED UPWARD BAR - SHIFTED H
CURSOR RIGHT       .    ▒   REVERSED LEFT SQUARE BRACKET)

SET COLOUR TO
        BLACK      .    ▒    REVERSED SHIFTED F)
        WHITE      .    ▒    REVERSED E
        RED        .    ▒   (REVERSED C
        CYAN       . .  ▒    REVERSED COMMOD RE-SHIFTED *
        PURPLE     . .  ▒    RE-ERSED C'MMODURE-SHIFTED -
        GREEN          ▒    REVERSED UP ARROW)
        BLUE       . .  ▒    REVERSED LEFT ARROW)
        YELLOW     .    ▒    RE ER-ED PI SIGN
THE FUNCTION OF  HIFT E IS OFFSHIFTED INTO PRINT STATEMENT' TOO.
AS WITH THE  INER (ALT+LEFT-NUMBER)  .  '  THE' APPEAR AS SPECIAL

(SHIFTED .1  .[2" IF
!!     ▒                  F1   .  ▒
"      .  ▒               F3   .  ▒
FF     .  ▒               F5   .  ▒
!"     .  ▒               F7   .  ▒
```

DON'T GET LEFT BEHIND!

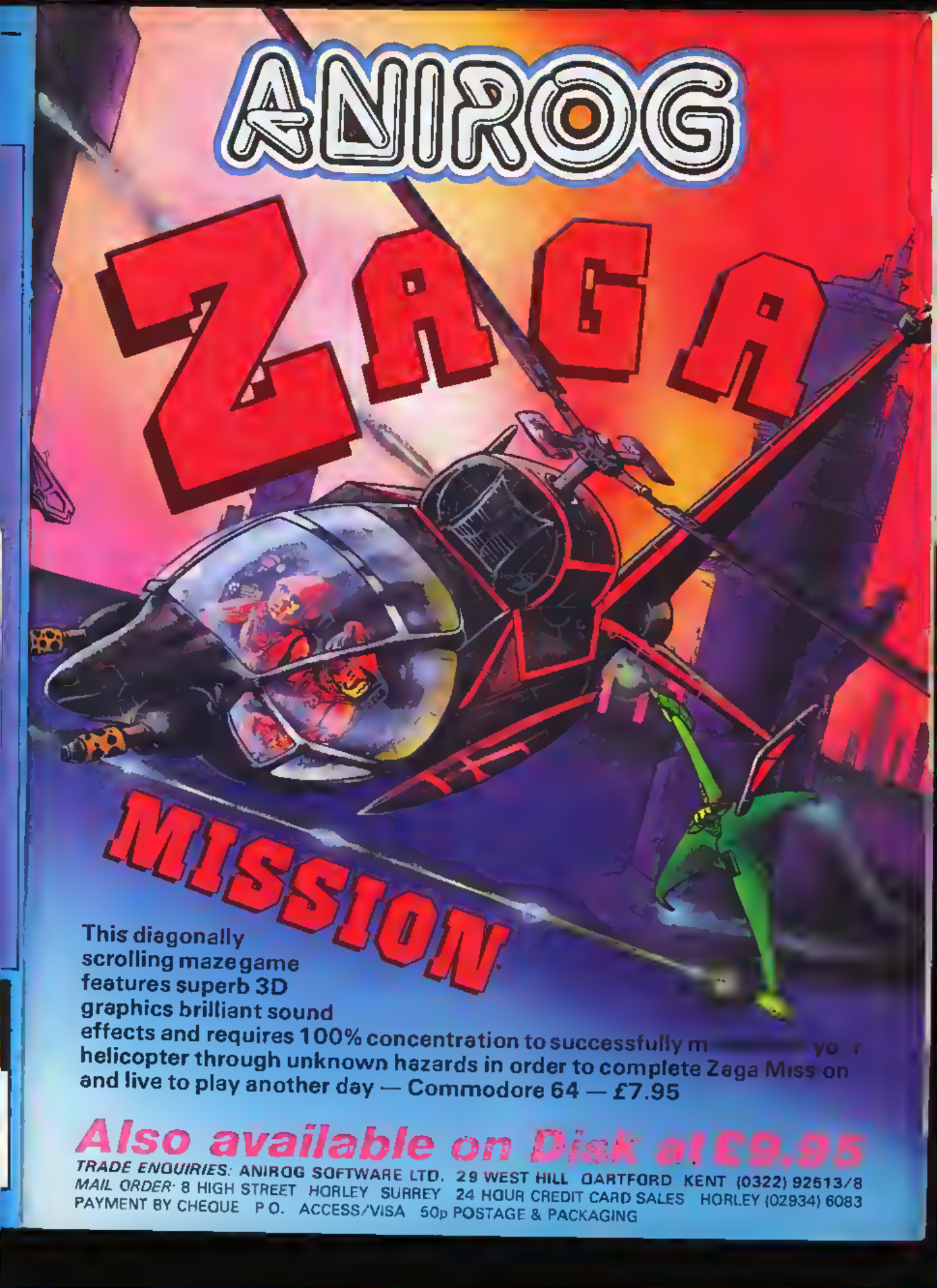
Use the order coupon below to make sure you get your monthly copy

To my newsagent:
Please send/reserve me a copy of Commodore User every month until further notice.

Name: .....

Address: .....

.....



This diagonally scrolling maze game features superb 3D graphics brilliant sound effects and requires 100% concentration to successfully m yo r helicopter through unknown hazards in order to complete Zaga Miss on and live to play another day — Commodore 64 — £7.95

Also available on Disk at £9.95

TRADE ENQUIRIES: ANIROG SOFTWARE LTD. 29 WEST HILL DARTFORD KENT (0322) 92513/8
MAIL ORDER: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT CARD SALES HORLEY (02934) 6083
PAYMENT BY CHEQUE P.O. ACCESS/VISA 50p POSTAGE & PACKAGING

They came from out of the desert to the lost city of Antescher and discovered the HORROR of the ANTS...

ANT ATTACK 3D

Turbo load Commodore 64 **£8.95**

available from

QUICKSILVA

Quicksilva Mail Order, P.O. Box 6, Wimborne, Dorset BA21-7PY. Tel. (0202) 891744

Selected titles available at WHSMITH, Boots, WOOLWORTH, John Menzies and leading multiple retailers and specialist computer shops.

SEE-SAW

COMMODORE 64
Turbo load
£7·95

COMMODORE 64
Turbo load £7·95 each

A GAME OF STRATEGY THAT WILL TEST YOUR MIND TO THE LIMIT!

The Evil Castle Lord has trapped the members of the brotherhood in his castle. Only you, the Grand Master, can rescue them, but to do this you must vault the castle walls and unlock their cells...

QUICKSILVA

All titles available from Quicksilva Mail Order,
PO Box 6, Wimborne Dorset BA21 7PY. Tel (0202) 891744.

MICROPOWER
electron
STOCK CAR
WATCH OUT FOR OUR NEW PACKAGING AND CATALOGUE
MICRO POWER
MICRO POWER LTD
NORTHWOOD HOUSE, NORTH STREET
LEEDS LS7 2AA TEL. (0532) 458800
AUTHORS! WE PAY 20% ROYALTIES!

Spymaster

by Albert van Aardt

Here's a little program for all you kids who need to send secret messages. It will work on both the Commodore 64 and the Vic-20

Type it in, SAVE it, then RUN it The program will ask you if you want to translate or interpret Translate means that you type in your message, and the computer will display the message in code on the screen Interpret does just the opposite you type in the coded message and the computer will display the message in ordinary alphabet.

The secret of the program lies in **line 20** You can jumble up the alphabet in any old way you like, as long as you use the same letters numbers and punctuation marks as in **line 10** Note the space in **lines 10 and 20** Nobody can crack this code without a copy of the program and as long as you use the same program to translate and interpret, you can quite easily understand your friends' secret messages

```
SPYMASTER!


10 A$="ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890+-*/?.,!"@=:()<
20 B$="QWERTYUIOP@*^ASDFGHJKL:!=2XCVBNM,./-+0PRINT9)8(716 5342)
30 PRINT"{CLS}{2CD}1. TRANSLATE ALPHABET TO CODE."
40 PRINT"{2CD}2. INTERPRET CODE TO ALPHABET."
50 INPUT"{2CD}OPTION";O
60 IFO=2THEN100
62 IFO<>1THEN30
65 GETC$:IFC$=""THEN65
70 FORR=1TO52
72 IFMID$(A$,R,1)=C$THENPRINTMID$(B$,R,1);:R=52
80 NEXTR
90 GOTO60
100 GETC$:IFC$=""THEN100
110 FORR=1TO52
120 IFMID$(B$,R,1)=C$THENPRINTMID$(A$,R,1);:R=52
130 NEXTR
140 GOTO100

READY.
```

THE SPREADSHEET
IN A CLASS OF ITS OWN

CBM 64 TAPE ONLY £14.95

CBM 64 DISK ONLY £19.95

Q: Which spreadsheet is suitable for accountants, engineers, scientists and home users?
A: Autocalc 64 is ideal for any application involving extensive manipulxtion of data and formulae from financial planning to market research.

Q: Which spreadsheet offers an advanced level of formula handling?
A: Autocalc 64 copes easily with trignometrical functions, parenthesis and boolean logic as well as totalling and averaging.

Q: Which spreadsheet accepts complex conditional statements?
A: Autocalc 64 can handle statements as complex as IF a1<4,000 OR a1>8,000 AND a2 = 500 THEN b1=0.

Q: Which spreadsheet offers a flexible screen format?
A: Autocalc 64 allows you to select (i) column widths ftom 3 to 30 characters (ii) the number of rows/columns you need (iii) up to 2,000 cells of information (iv) text or numerical entries lined up to the right or the left, or a combination.

Q: Which spreadsheet offers a choice of numerical formats?
A: Autocalc 64 gives you a choice of (i) integers (ii) floating decimal point (iii) currency (iv) any combination of these.

Q: Which spreadsheet offers a full 'replicate' facility?
A: Autocalc 64 has an advanced replication function for transferring text, data, formulae or conditional statements from any cell (or block of cells) to any other(s) without monotonous retyping. A 'go to' facility will take the cursor instantly to any cell of your choice — saving time.

Q. Which spreadsheet is easy to use yet advanced in operation?
A: Autocalc 64 is designed to guide you — helpful error reports diagnose input or formulae errors. A full demonstration program and comprehensive instructions are included.

Q. Which spreadsheet is compatible with standard Commodore printers?
A: Autocalc 64 gives you a printout facility using any of these printers: Commodore 1515, 1525, MPS 801, 1526, MCS 801, DPS 1101, Seikosha GP100VC.

Q. Which spreadsheet is 100% machine code for fast efficient responses, and offers a choice of saving to disk (using 1541 drive) or to tape using a C2N unit?
A: Autocalc 64 — as if you didn't know!

Q. Which spreadsheet sells at a realistic budget price?
A: Autocalc 64 costs just £14.95 on tape, £19.95 on disk inclusive of VAT and P&P.

Q. Where do I get one?
A: Ring us now on 06286 63531 (24 hours) to place your ACCESS or VISA card order, or complete the order form and send it to us today. (Prompt delivery promised). Autocalc 64 is available from Boots and all leading computer stores.

24 HOUR CREDIT CARD HOTLINE
06286 63531

Please send me:

_____ Autocalc 64 DISK at **£19.95**

_____ Autocalc 64 TAPE at **£14.95**

(Overseas orders add £1.50 P&P).

I enclose Cash/Cheque/P.O. payable to Richard Shepherd Software Ltd OR please debit my ACCESS/VISA card No

Signature _____

NAME _____ ADDRESS _____

_____

_____

All programs are sold subject to the condition that they may not by way of trade or otherwise be lent, hired out, resold or otherwise circulated without the written permission of Richard Shepherd Software Ltd

RICHARD SHEPHERD SOFTWARE

ELM HOUSE, 23-25 ELMSHOTT LANE, CIPPENHAM, SLOUGH, BERKS. TEL. (06286) 63531

Named Subroutine Calls In Commodore Basic

by M.C. Hart

All Basic programmers know that it's possible to transfer the sequence of a program by a GOTO command or call a specific subroutine with a GOSUB. But GOTOs and GOSUBs reference particular line numbers such as GOSUB 1000 and this does not help another reader of the program to realise the purpose of the subroutine that is being called. Actual authors of the program can forget their own logic after a week or so.

Other languages such as Pascal enable procedures to be CALLed by name: for example CALL PRINTOUT. And this makes the programs easier to read and to de-bug. Some Basics (notably BBC Basic) allow one to set up procedures and to call them by name. So Commodore Basic starts to look very limited when compared with this opposition.

To rectify the situation, here's a routine which will allow you to call a subroutine by name. The interpreter will evaluate any expression so it is quite possible to include a complex arithmetic expression after the GOSUB or GOTO command if you like. This is sometimes known as a COMPUTED GOSUB/GOTO and again some Basics (but not CBM) specifically allow it. The occasions when it is most likely to be used will be after a menu – if the variable K holds the choice selected from the menu then one can then call subroutines by GOSUB K*1000. This can be done already with the ON K GOSUB n, n1, n2 approach and the occasions when one could use a genuinely computed GOSUB/GOTO may be limited.

The routine really does come into its own when you wish to name a GOSUB or GOTO. These will have to be defined first (see line 10 of the listing) and the interpreter will only recognise the first two letters. And the name should not incorporate keywords such as TO and THEN.

```
1 REM NAMED-GOSUB/GOTO  M.C.HART
2 :
5 FORI=828 TO 988:READ X:T=T+X:POKEI,X:NEXT
6 IF T<> 18487 THEN PRINT"DATA ERROR":END:REM C-64
7 REM II=18743 FOR VIC
8 :
10 SYS 828:REM TURNS ON:SYS 845 TURNS OFF
20 HELLO = 100
30 :
40 FOR J=1 TO 10:PRINT J:NEXT
50 GOSUB HELLO
60 PRINT"[CO]--END--":END
70 :
100 PRINT"HELLO"
110 GOSUB HELLO*2
120 RETURN
130 :
200 PRINT"THERE";
210 GOSUB HELLO*3
220 RETURN
230 :
300 PRINT"SAILOR!"
310 GOTO 200*2
320 PRINT"ABOUT!"
330 RETURN
340 :
400 PRINT"[CO]O.K.!"
410 GOTO 330
420 :
480 REM C-64 DATA
490 :
500 DATA 162,5,189,71,3,149,115,202
510 DATA 16,248,96,76,88,3,32,162
520 DATA 227,162,3,189,162,222,149,115
530 DATA 202,16,248,96,32,118,0,201
540 DATA 162,240,59,201,137,240,107,201
550 DATA 141,208,48,104,141,58,3,104
560 DATA 141,59,3,169,3,32,251,183
570 DATA 165,123,72,165,122,72,165,58
580 DATA 72,165,57,72,169,141,32,32
590 DATA 162,227,32,158,173,32,247,183
600 DATA 32,163,168,173,59,3,72,173
610 DATA 58,3,72,76,121,0,169,255
620 DATA 133,2A,32,138,163,154,201,141
630 DATA 240,11,162,12,44,162,17,24
640 DATA 55,164,76,8,175,104,104,133
650 DATA 57,104,133,58,104,133,122,104
660 DATA 133,123,32,6,169,152,24,101
670 DATA 122,133,122,144,2,230,123,76
680 DATA 174,167,32,162,227,32,158,173
690 DATA 32,247,183,32,163,168,24,121,0
700 :
980 REM VIC DATA
990 :
800 DATA 162,5,189,71,3,149,115,202
810 DATA 16,248,96,26,88,3,32,135
820 DATA 227,162,3,189,133,227,149,115
830 DATA 202,16,248,96,32,118,0,201
840 DATA 162,240,59,201,137,240,107,201
850 DATA 141,208,48,104,141,58,3,104
860 DATA 141,59,3,169,3,32,291,195
870 DATA 165,123,72,165,122,72,165,58
880 DATA 72,165,57,72,169,141,72,32
890 DATA 135,227,32,138,205,32,247,219
900 DATA 32,163,200,173,59,3,72,173
910 DATA 58,3,72,26,121,0,169,255
920 DATA 133,74,32,138,195,154,201,141
930 DATA 240,11,162,12,48,162,17,74
940 DATA 55,196,76,8,207,104,104,133
950 DATA 57,104,133,58,104,133,122,104
960 DATA 133,123,32,6,201,152,24,101
970 DATA 122,133,122,144,2,230,123,74
980 DATA 174,199,32,135,227,32,158,205
990 DATA 32,247,215,32,163,200,76,121,0
```

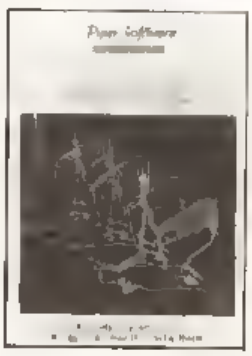
Piper Software

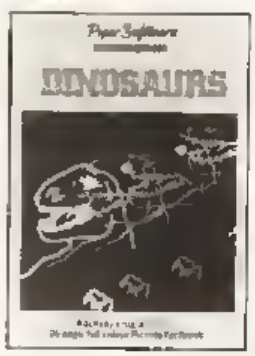
FUN-FILLED FACT-FINDING!

4 new packs using facts, colour graphics, animation and computer games to bring information to life as never before.

★ ASTRONOMY ★ AIRCRAFT ★ BIRDS ★ DINOSAURS ★

Each pack contains a cassette, a 96 page Piccolo Factbook, plus separate program notes . . . all for just £7.95





Both ZX Spectrum 48K and Commodore 64 versions available from all good bookshops, computer departments and computer shops.

Published 7 November 1984

Piccolo

SOFTWARE PRODUCED BY Chalksoft

For fast 24 hour service ring 01-200 0200

VISA

To check this, you should define all the subroutine names early on in the program and if they are illegal then the interpreter will give a SYNTAX ERROR MESSAGE IN ... message. Having defined the subroutine name you should then be careful not to let other variables get mixed up with it of course, but it is possible to manipulate it in various ways. In the demo program the variable HELLO is defined as having a value of 100 and this subroutine calls other subroutines known as HELLO*2 and HELLO*3 as well as a computed GOTO before returning to the end.

Construction of the program

The program works by looking for the tokens for GOTO, GOSUB and RETURN in the Basic text and then diverting the normal course of the machine code instructions through this routine. It is turned 'on' by calling **SYS 828** and normal operation is assured by calling **SYS 845**. It's fairly lengthy because quite extensive sections of the machine code instructions that process these tokens have to be copied into RAM so that they can be modified to suit our purposes. Readers of the recent series on wedges will realise that this routine works in precisely that way by 'wedging' itself into the operating system and allowing one to perform operations upon the keywords before the normal interpreter has a chance to act.

But there are a few restrictions As already mentioned, variable names must be two letters and they cannot include keywords. In addition, the ON ... GOTO and ON .. GOSUB commands will now crash as the processing of these commands would have required even more code However it is possible to get round this restriction quite easily Turn 'off' the routine with a **SYS 845** call just before you use the ON .. GOSUB or ON .. GOTO and then reactivate it with a **SYS 828**

For interested machine code programmers a disassembly is given for the Commodore 64. For Vic programmers another set of data statements is included from **lines 900-930** Merely ignore the routines provided for the Commodore 64 from **lines 500-690** and substitute the appropriate checksum figure from line 7 into line 6.

Renumbering the program

Normally renumbering the program would alter the location of all of the subroutines and the named subroutine program developed here would not work. However there is a way round this which is quite easy and will enable you to renumber programs at will.

- Load program but do not run it.
- For each of the names that you have allocated to a sub-routine, put a GOTO xxxx where xxxx is the line number at which the routine resides. We are not going to RUN the program with these GOTOs but use them as an aid in the renumbering process.
  e g 20 HELLO = 100 becomes
  20 HELLO = 100: GOTO 100
- Use the renumber routine that you already have.
- Now see what all the GOTOs at the end of your variable names have become This is obviously the location of all your renumbered and named sub-routines. Change the appropriate value and delete the GOTO before running and/or saving.

This technique will work quite satisfactorily if you have given all of your subroutines simple variable names. However a name such as HELLO*2 will obviously not survive this process so if you are going to renumber your program at any stage it is better to stick to straightforward subroutine names.

A 'quick and dirty' method

Finally, there is a way in which you can cheat without bothering to amend the interpreter in any way. If you were to include a line in your program such as GOSUB 1000 (PRINTOUT) or GOTO 5000 (END) then the interpreter will act upon the digits immediately following the keyword but will not generate a syntax error when it meets any alphanumeric characters. This means that it's possible without any change to label all your subroutines or GOTOs with a name which, as a matter of policy, should match up with a REM at the start of the subroutine. This is a good and easy way to keep your programs well documented!

```
B#
   PC  SR AC XR YR SP
.;0000 30 4F 4F 28 FB
.
033C A2 03      LDX #$03
033E B0 47 03   LDA $0347,X
0341 85 73      STA $73,X
0343 CA         DEX
0344 10 F9      BPL $033E
0346 60         RTS
0347 4C 58 03   JMP $0358
034A 20 A2 E3   JSR $E3A2
0340 A2 03      LDX #$03
034F B0 A2 E3   LDA $E3A2,X
0352 95 73      STA $73,X
0354 CA         DEX
0355 10 F8      BPL $034F
0357 2E         RTS
0358 20 7B 00   JSR $007B
035B C9 8E      CMP #$8E
035D F0 38      BEQ $0397
035F C9 89      CMP #$89
0361 F0 2E      BEQ $03CE
0363 C5 90      CMP $90
0365 D0 90      BNE $0367
0367 68         PLA
0368 A0 3A 03   STA $033A
036B 68         PLA
036C A0 36 03   STA $0336
036F A5 03      LDA $03
0371 20 F8 A3   JSR $A3F8
0374 A5 7B      LDA $7B
0376 48         PHA
0377 A5 7A      LDA $7A
0379 48         PHA
037A A5 3A      LDA $3A
037C 48         PHA
037D A5 39      LDA $39
037F 48         PHA
0380 A5 80      LDA $80
0382 48         PHA
0383 20 A2 E3   JSR $E3A2
```

```
0386 A0 9E A0   JSR $A09E
0389 20 F7 87   JSR $87F7
038C 20 A3 A6   JSR $A6A3
038F A0 36 03   LDA $0336
0392 48         PHA
0393 A0 3A 03   LDA $033A
0396 48         PHA
0397 4C 79 00   JMP $0079
039A A5 FF      LDA #$FF
039C 85 4A      STA $4A
039E 20 8A A3   JSR $A38A
03A1 8A         TXA
03A2 C9 80      CMP #$80
03A4 F0 01      BEQ $03A7
03A6 A2 0C      LDX #$0C
03A8 2C A2 11   BIT $11A2
03AB 4C 37 A4   JMP $A437
03AE 4C 08 AF   JMP $AF08
03B1 68         PLA
03B2 A0         PLA
03B3 85 39      STA $39
03B5 85         PLA
03B6 85 3A      STA $3A
03B8 68         PLA
03B9 85 7A      STA $7A
03BB 68         PLA
03BC 85 7B      STA $7B
03BE 20 86 A5   JSR $A586
03C1 98         TYA
03C2 18         CLC
03C3 65 7A      ADC $7A
03C5 85 7A      STA $7A
03C7 90 02      BCC $03CB
03C9 E6 7B      INC $7B
03CB 4C AE A7   JMP $A7AE
03CE 2E A2 E3   JSR $E3A2
03D1 20 8E A0   JSR $A08E
03D4 20 F7 87   JSR $87F7
03D7 20 A3 A6   JSR $A6A3
03DA 4C 79 00   JMP $0079
```

Commodore 64 Cat Chase

by Neil Phillips

This simple game is guaranteed to provide hours of fun for all the family.

The action takes place in a randomly drawn maze, and your task is to escape via the exit without being caught in the clutches of the roving cat

As usual, take care when typing this program in, and save off before running!

C-64 CAT CHASE

Program structure:

10 –	Set beginning of screen RAM and difference between colour and screen RAM
20 –	Set screen and border colours
80 –	Pick random starting position for the mouse, define exit position
90 –	GOSUBs a routine starting at line 8000 for instructions on game play
100-250 –	Maze generation routine
270 –	POKEs "mouse" into random starting position, checking to be sure it is a space character
310 –	POKEs "cat" character onto screen at proper location
1010-1025 –	Moves cat through maze checking for collisions with mouse
1100 –	Gets value of present key being pressed
1110-1140 –	If movement key, will add proper amount to mouse position
1160 –	Checks to see if cat has hit mouse, if so, branches
1170 –	Checks to see if mouse has reached exit, if so, branches
1180 –	If new position of mouse is a wall, stay in old position
1500 –	Moves mouse appropriately as earlier determined
1510 –	Short pause
1600 –	Old position is now equal to position just moved to
1700 –	POKEs exit character
2500 –	Goes back through loop
5000-5010 –	PRINTs caught message, goes to ending screen
6000 –	PRINTs escaped message
7000-7030 –	Final screen display
7090 –	Clears keyboard buffer to prevent extra keystrokes from appearing on screen, then ENDs program
8000-8040 –	Game instructions
8050 –	Waits for the <RETURN> key to be pressed
8060 –	RETURNS from subroutine

```
10 S=1024:C=54272
20 POKE53280,3:POKE53281,1
80 P=INT(RND(.)*960)+1064:OP=P:E=S+82
90 GOSUB8000
100 DIMA(3)
110 A(0)=2:A(1)=-80:A(2)=-2:A(3)=80
120 ML=160:HL=32:A=S+82
130 PRINT"{CLS}{BLU}{22DOWN}{SPC}{18SPC}";
140 FORI=1TO23
150 PRINT"{CR}{REV}{37SPC}{OFF}{DOWN}{SPC} ";
160 NEXT
210 POKEA,A
220 J=INT(RND(.)*4):X=J
230 B=P+A(J):IFPEEK(B)=HLTHENPOKEB,J:POKEA+A(J)/2,HL:A=B:GOTO220
240 J=(J+1)-(J<3)*(J=3):IFJ<>XTHEN230
250 J=PEEK(A):POKEA,HL:IFJ<4THENA=A-A(J):GOTO220
270 P=INT(RND(.)*920)+6:OP=P:IFPEEK(P)<>32THEN270
310 POKEA,81:POKEA+C,0:J=2
1010 FORK=1TO2
1015 B=A+A(J)/2:IFPEEK(B)=HLTHENPOKEB,81:POKEB+C,0:POKEA,HL:A=B:J=(J+2)+4*(J>1)
1017 J=(J-1)-4*(J=0)
1020 IFB=PTHEN5000
1025 NEXT
1100 D=PEEK(203)
1110 IFD=23THENP=P+40
1120 IFD=10THENP=P-1
1130 IFD=18THENP=P+1
1140 IFD=9THENP=P-40
1160 IFA=PTHEN5000
1170 IFP=ETHEN6000
1180 IFPEEK(P)=160THENP=OP:GOTO1700
1500 POKEP,42:POKEP+C,2:IFD<>64THENPOKEOP,32
1510 FORK=1TO10:NEXT
1600 OP=P
1700 POKEE,5
2000 GOTO1010
5000 PRINT"{CLR}{DOWN}{BLU}YOU HAVE BEEN CAUGHT BY THE CAT..."
5100 GOTO7010
6000 PRINT"{CLR}{DOWN}{BLU}YOU HAVE ESCAPED UNHARMED..."
7010 PRINT"{3DOWN}IF YOU WISH TO TRY THIS SUPER-SIMPLE"
7020 PRINT"GAME AGAIN, ENTER "CHR$(34)"RUN"CHR$(34)",{2DOWN}"
7030 PRINT"{YEL}BYE!{RED}"
7050 FORK=1TO11:POKE1+K:NEXT:CLR:END
8000 PRINT"{CLS}{2DOWN}{15CR}{REV}{RED}CAT{2SPC}CHASE{BLU}{3DOWN}"
8010 PRINT"YOU (*) WILL BE PLACED AT RANDOM IN A"
8015 PRINT"MAZE, AND MUST REACH THE EXIT (E).{2SPC}BUT"
8020 PRINT"WATCH OUT FOR THE CAT ({DOWN}), BECAUSE IF"
8025 PRINT"YOU HIT HIM YOU WILL DIE.{CD}"
8030 PRINT"USE KEYS A, X, D, AND W TO MOVE."
8040 PRINT"{5DOWN}{4CR}{REV}{BLK}PRESS <RETURN> TO BEGIN THE GAME"
8050 GETA$:IFA$<>CHR$(13)THEN8050
8060 RETURN
```

A FREE LIGHTPEN!

Yes a FREE Light Pen! with every **GRAPHKIT**! Graphkit is the ultimate in drawing!, designing! or painting! (using the light pen of course which incidentally has a full 3 year warranty!) Graphkit will amongst other things allow you to.

- Draw free handed on the screen anything from a Micky Mouse to your latest integrated circuit! With all the fill colour and erase facilities of course!
- Save/load your latest master piece to/from the disk/tape drive
- Or directly copy the drawing on the screen to the printer! And keep it for ever or send to a friend as a post card!
- Design your own colourful sprites and characters
- Play the games in the package! or use the light pen in your own games/education/programs

GRAPHKIT is available on disk and tape. Tape version is £1595 and disk version (recommended) is £19 95.

All you 1540/1541 disk users **DMON**! Is here at last Dmon is the disk monitor you have been waiting for it will allow you to:

- read/write blocks from/to the disk
- display and edit blocks on the screen
- display and send disk massages/commands
- transfer your programs from tape to disk or disk to disk or even disk to tape! • and more!

DMON comes on DISK at only £9 95

Do you use tapes? Are you sick and tired of waiting for your programs to be Loaded/Saved from/on the tape? Then you need a **TORNADO**!! Tornado allows you to Save/Load/Verify your Basic/machine code programs faster than a CBM 1541 disk drive does! Due to popular demand! Tornado now comes with new and more powerful commands plus extra instructions to assist you in making fast versions of your existing machine code/Basic programs Tornado is available on tape for CBM 64 and 8K + Vic 20

Do your Run/Stop and Restore keys often fail? Do you want to come out of those crashes?! Or get into those unbreakable programs?! Then what are you waiting for, get yourself a **BREAKER**!! Reset switch and let your computer know who is the boss!! Breaker can be connected to your machine in seconds, no soldering. Included with the Breaker is a copy of basic recovery software on tape Now available for any CBM 64 or Vic 20.

A FREE BREAKER WITH EVERY TORNADO IF YOU USE THE COUPON BELOW NOW!

BSF CSL, 82 FURNACE DRIVE, CRAWLEY, W SUSSEX RH10 6JE.

Please send me	Tornado at £9 95 + my free! Breaker
Please send me	Breaker at £7 95
Please send me	Rom File at £7 95
Please send me	Lightpen at £11 95
Please send me	Graphkit at £15 95 (tape)
Please send me	Graphkit at £19 95 (disk)
Please send me	DMON at £9 95

I enclose cheque/PO/cash to the sum of £.

Name . . . . . Computer . . . . . .

Address . . . . . .

. . . . . .

Tel

Please use this form and block letters only. All prices are inclusive of p&p (mail order only, add £2 if outside UK). Please post to:
BSF CSL, 82 FURNACE DRIVE, CRAWLEY, WEST SUSSEX RH10 6JE.

Computerama 64

the source

U.S. GOLD

64 EXECUTIVE OUTFIT

Add Disc Drive and Printer to your 64 at an unbelievable saving

1541 Disc Drive £229.00
MPS 801 Printer £229.00
Easy Script W/P £ 73.00
Easy File £ 60.00
Intro to Basic Pt 1 £ 14.95

~~£597.95~~
OUR SUPER LOW PRICE ONLY £399.00

SAVE AMOUNT £200 ON LIST

MPS 801 PRINTER ONLY £169

Our prices are the BEST. If you find that you could have bought an identical product, currently advertised and in stock at a lower price, we will CREDIT the difference.

EPSON FX80
For The Commodore 64

COMMODORE 1541 DISC DRIVE

FREE software

We endeavour to despatch within 24 hours on stock items

QUICKSHOT II
Deluxe Joystick Controller

- NOW WITH RAPID FIRE FEATURE
- Robust, Accurate & Responsive
- BETTER MADE For longer life
- Long cord & TOUGH rebuilded plug
- Self Centring Joystick at an unbeatable price
- TWO Fire buttons – for maximum control & comfort
- PISTOL GRIP – comfortable over many exciting hours of game play

ONLY £10.95 inc VAT

REACHES THE SCORES OTHER JOYSTICKS CAN'T

WE CHALLENGE YOU to order on now we can't supply. Give us 7 days, if we can't despatch we will send you a FREE GIFT. And return your cheque.

MONEY SAVER! 50p

FREE with every order, five pounds worth of moneysaving vouchers

ORDER BY MAIL
No Stamp Required
COMPUTERAMA
DEPT CUS
FREEPOST
STAFFORD ST16 2BR

ORDER BY TELEPHONE
For ACCESS or VISA 24 hour ORDER HOT LINE
Dial 0785 44222

CARRIAGE

Computerama 64

STAFFORD
60 Foregate Street

STOKE-ON-TRENT
11 Market Square Arcade.

SHREWSBURY
13 Castle Gates

Two routines for the Vic

by David Gardiner

Want to know how to reverse the screen on your Vic, or perhaps retrieve a program you've NEWed?

Here are three useful machine-code routines from David Gardiner to do just that. They're all listed in Basic with an accompanying disassembly of the code. Whether you're a Basic or an Assembler enthusiast, just type them in.

Reverse

This routine for the unexpanded Vic will reverse the screen instantly. The routine is positioned in the spare memory at 688 – 716. It is called with SYS 688.

How it works: when the SYS call is executed, each byte of the screen is EORed with 128, thus inverting the highest bit. Remember that you will see no difference if the writing colour is the same as the screen colour. The routine uses zero page locations 0 and 1.

The disassembly of the code is as follows:

```
02B0 LDA  #$00      A9 00
02B2 STA  $00       85 00
02B4 LDA  #$1E      A9 1E
02B6 STA  $01       85 01
02B8 LDY  #$00      A0 00
02BA LDA  ($00),Y   A0 00 ;NEXT
02BC EOR  #$80      49 80
02BE STA  (#$00),Y  91 00
02C0 INC  $00       E6 00
02C2 BNE  NEXT      D0 F6
02C4 INC  $01       E6 01
02C6 LDA  $01       A5 01
02C8 CMP  #$20      C9 20
02CA BNE  NEXT      D0 EE
02CC RTS            60
```

Retrieve

This routine for any Vic will retrieve a NEWed program. It is a simple piece of code, but very useful. It is positioned in the spare memory at **684 – 764**. The routine is called with **SYS 684** (followed by LIST to see the program).

How it all works: when the SYS call is executed, 16 is stored in the start of Basic +2, which is the high byte of the first link address. The code then jumps to the routine at **$C533** to re-chain Basic lines. Then it searches through the Basic to find the end (3 zero bytes) and resets the numeric variables and array pointers to point to the end of the program.

Important: the routine will not work if you have already started to type in a new program, or if you have assigned any variables since the NEW. The routine itself performs a CLR.

If, when you call the routine, you get a SYNTAX ERROR, then the code has not been able to find the end of the program.

```
100 FORT=684 TO 754
110 READA
120 POKET,A
130 NEXT
140 DATA169, 0, 133, 0, 160, 1,
    169, 16, 145, 43, 32, 51, 197,
    169, 1, 133, 1
150 DATA165, 44, 133, 2, 160, 0,
    177, 1, 240, 23, 169, 0, 133,
    0, 230, 1, 165, 1
160 DATA197, 56, 208, 240, 230,
    2, 165, 2, 197, 56, 208, 232,
    76, 3, 207, 230
170 DATA0, 165, 0, 201, 3, 208,
    229, 230, 1, 208, 2, 230, 2,
    164, 1, 156, 2, 132, 45
180 DATA132, 47, 132, 49, 134,
    46, 134, 48, 134, 50, 96
```

The disassembly of the code is as follows:

```
02AC LDA  #$00      A9 00
02AE STA  $00       85 00
02B0 LDY  #$01      A0 01
02B2 LDA  #$10      A9 10
02B4 STA  ($28),Y   91 2B
02B6 JSR  $C533     20 33 C5 ;RECHAIN BASIC
02B9 LDA  #$01      A9 01
02BB STA  $01       85 01
02BD LDA  $2C       A5 2C
02BF STA  $02       85 02
02C1 LDY  #$00      A0 00
02C3 LDA  ($01),Y   B1 01    ;GETBYTE
02C5 BEQ  COTZERO   F0 17
02C7 LDA  #$00      A9 00
02C9 STA  $00       85 00
02CB INC  $01       E6 01    ;INCPTRS
02CD LDA  $01       A5 01
02CF CMP  $37       C5 37
02D1 BNE  GETBYTE   D0 F0
02D3 INC  $02       E6 02
02D5 LDA  $02       A5 02
02D7 CMP  $38       C9 38
02D9 BNE  GETBYTE   D0 E8
02DB JMP  $CF08     4C 08 CF ;PRINT SYNTAX ERROR
02DE INC  $00       E6 00    ;COTZERO
02E0 LDA  $00       A5 00
02E2 CMP  #$03      C9 03
02E4 BNE  INCPTRS   D0 E5
02E6 INC  $01       E6 01
02E8 BNE  RSTPTS    D0 02
02EA INC  $02       E6 02
02EC LDY  $01       A4 01    ;ASTPTS
02EE LDX  $02       A6 02
02F0 STY  $2D       84 2D
02F2 STY  $2F       84 2F
02F4 STY  $31       84 31
02F6 STX  $2E       86 2E
02F8 STX  $30       86 30
02FA STX  $32       86 32
02FC RTS            60
```

NEW!

AMAZING NEW SPEECH SYNTHESISER FOR YOUR COMMODORE 64

ALLOPHONE BASED SPEECH WITH AN UNLIMITED VOCABULARY

● New basic commands give full control over all speech functions ● Approximately 200 predefined words built-in ● Speech may be produced simultaneously with graphics and sound ● Extended Basic commands are very powerful and are well proven on our other speech synthesisers ● This must be one of the most advanced and comprehensive speech synthesisers available today

Rarely has anything been so easy to use on a Commodore 64.

Order now by sending cheque, P.O., Access number to –
J.C.B. (MICROSYSTEMS),
29 Southbourne Road,
Bournemouth, Dorset. BH6 5AE
Tel. (0202) 423973.

Dealers– please contact us now. Never have our terms been better.

Speakezy

SPECIAL OFFER XMAS ONLY

£24.95

LIMITED OFFER

ORDER NOW FOR XMAS

+ 75p p&p VAT incl
Splitter lead for use with monitors £1.50

J.C.B. (MICROSYSTEMS)

THE FABULOUS **CASSETTE 50** FROM cascade

ONLY £9.95 (INC.P&P and VAT)

VALUE that's out of this world

COMMODORE 64

Only you can save Europe from destruction! It's ROCKET LAUNCH, the thrilling war game that reproduces a European map. More ambitious? Try rescuing your crew under GALACTIC ATTACK! Just two of the great games on your Cassette-50, featuring high resolution and user-defined graphics, sprites, sound and music and much, much more!

50 GAMES ON ONE CASSETTE

NOW AVAILABLE FOR commodore 64 ELECTRON Atmos DRAGON BBC A/B Spectrum apple ATARI ORIC-1 ZX81 VIC 20

No	Game	No	Game	No	Game
1	MONTHER	18	[illegible]	36	DRAGGED
2	[illegible]	19	TANKS	37	[illegible]
3	[illegible]	20	SOLAR CHIP	38	[illegible]
4	[illegible]	21	TEN PINS	39	[illegible]
5	[illegible]	22	[illegible]	40	[illegible]
6	[illegible]	23	STOMPER	41	[illegible]
7	[illegible]	24	[illegible]	42	[illegible]
8	[illegible]	25	[illegible]	43	[illegible]
9	[illegible]	26	[illegible]	44	[illegible]
10	[illegible]	27	[illegible]		[illegible]
11	[illegible]	28	[illegible]	45	[illegible]
12	[illegible]	29	[illegible]	46	[illegible]
13	[illegible]	30	[illegible]	47	[illegible]
14	[illegible]	31	[illegible]	48	[illegible]
15	[illegible]	32	[illegible]	49	[illegible]
16	[illegible]	33	[illegible]	50	[illegible]
17	[illegible]	34	[illegible]		
18	[illegible]	35	[illegible]		

50 GAMES ALSO AVAILABLE FOR VIC 20

WE PAY TOP PRICES FOR TOP QUALITY GAMES

EXPRESS DELIVERY - ORDER NOW

Name _____
Address _____
_____ Post Code _____
Country _____

Dealers & Stockists enquiries welcome

Please send me by return of post Cassette 50 at £9.95 per tape. I enclose a cheque/postal order for

£ _____ made payable to Cascade Games Ltd

Please debit my [illegible] No _____

COMMODORE 64	☐	VIC 20	☐	ORIC 1	☐	BBC A/B	☐
SPECTRUM	☐	ELECTRON	☐	ZX 81	☐	APPLE	☐
ATARI	☐	ATMOS	☐	DRAGON	☐		✓

Cascade Games Ltd
Suite 4, 1-3 Haywie Crescent, Harrogate
North Yorkshire, HG1 5BG England
Telephone (0423) 504526

CU 11 84

Managing to run your home?

Abrasco's Home Manager reviewed

by Ken Ryder

Remember when you were justifying buying a computer to your spouse, your parents, yourself and the Almighty? Well, one of the persuasive arguments you could have used would be that it can solve your accounts problems, keep records, an address book, do calculations and all kinds of other things.

Abrasco has introduced a suite of five programs, collectively called Home Manager, which cover all the above applications. Ken Ryder finds out whether, at £12.50 on tape and £15 on disk, this budget package can solve your domestic problems.

Each program in the suite is menu driven, and all are of a similar format. So once you've mastered one, the others follow naturally. Output from all the four main programs can be printed, but only to Commodore's own serial printers, the 1515/1526 or equivalents. The files created are sequential; but one caveat, since there are no disk handling facilities, if you use a filename which already exists, it will be overwritten without warning.

Address Manager

The first of the quintet is a program for storing and retrieving names, addresses and telephone numbers. There is enough space for two telephone numbers per name, perhaps one for home and another for work. Once the data has been entered, the address for a particular surname can be searched for and displayed. It may also be edited or deleted when friends move house – or fall out of favour. If the exact spelling is not known the search can be made on the first two characters of the surname only. Alternatively the addresses of all names beginning with a specified character can be listed.

Individual addresses can be selected for printing, or all the addresses can be sent to the printer in either label or list format, with or without telephone numbers, just imagine, at Christmas you could impress your friends by commanding your 64 to print out a load of sticky labels for your cards.

The system is capable of storing up to 350 average sized records, and gives a warning when remaining memory falls below 500 bytes. A very small business with a standard mailing list could possibly use this program to good effect. But it should be noted that the addresses can only be sorted by surname so you cannot just print labels for customers based on a town or county; all your clients in Manchester, for example.

Diary Manager

The events which can be stored in Diary Manager are divided into two categories, special occasions and daily appointments. There are only four classes of special event: birthdays, weddings, engagements and the ominous 'other'. A few more headings would have been useful here such as anniversary or AGM, in addition to the all encompassing 'other'. Mundane daily events are associated with a time, specified on the 24 hour clock, a name and an event. The event must be fairly concise as it can only be described by 24 characters.

When all the entries have been made they can be searched in a number of ways: for dates to remember, for all entries for a given date, by name or the entries may be browsed through page by page.

When deleting an entry, the date is requested and all the entries for that day are displayed, each one may be deleted or retained as required. All, or a specified number of entries from a given date may be printed. In addition to loading and saving the data to disk or tape, just the special events may be loaded so that regular annual functions can be transfered from year to year – like birthdays, or the day your cat had kittens.

Expense Manager

Monthly expenses can be recorded with this package under 15 headings. But ten of the headings are already determined by the software, such as *mortgage/rent*, *groceries*, and *clothes*. The remainder are user definable. Some of the system headings are a bit odd (*miscellaneous* and *clothes*) whilst there are some more useful headings like *gas* and *rates* missing but you can include these in the user definable ones.

Data is entered under each heading for each month, including the date and method of payment. Unfortunately there are only four methods of payment to choose from, *Cash*, *Cheque*, *Credit Card* and, you guessed it, the *Other*. Personally I pay many of my monthly bills by standing order or direct debit through the bank and would like to have seen these in the options, rather than the vague 'other'. Any entry may be deleted; in fact this is the only way to alter a record after input – it must be deleted and then rewritten.

To delete the type of expense, date and amount must be specified. The record is then listed for checking before deletion.

The data can be analysed and displayed in three ways: by month for all 15 expenses together with the percentage of the total expenditure that each heading represents, and the yearly total. A single expense in a month can be viewed showing the date, amount and method of payment – in my case usually the 'other'. Finally the totals for each expense over the year can be

displayed, together with a percentage breakdown and grand total (how depressing). All of the above analyses can be sent to the printer instead of the screen.

Bank Manager

Bank Manager enables you to produce your own monthly bank statement. First, bank details such as the branch, account number and the present balance are entered. Then withdrawals by cheque or other means, such as standing orders, direct debits, credit card and yes, the 'other' Deposits can be entered, and deleted at will. (deletions are listed for verification before removal).

There are several methods of sorting all the data. details of a cheque can be found by cheque number, and other types of transaction can be located by specifying the date and amount. Alternatively a starting date is specified and all the records before or after this date can be browsed through.

The most impressive facility is the itemised statement that's produced of each transaction from a given date, page by page. Credit entries are shown in green, debits are highlighted in white and overdrawn figures appear in reverse characters – so when you're in the red you're in reverse

A printed bank statement can be produced for all, or just a certain number of entries from a specified date The loading and saving facility offers a security code. When saving data the user is prompted for a four figure security code and filename The data is then saved and may only be reloaded if the correct security code is given, so don't forget it!

Loan Calc

This is the smallest program and is used to forecast the cost of a loan against three variables: the principle, the interest rate, and the repayment period in years The interest rate is based on the flat rate not the APR (annual percentage rate). The total cost, monthly payments, and total interest paid are all displayed. Any or all of the variables may be changed as desired. This is a useful program to help decide the best way to spread the cost of your car, furniture – or even your Commodore 64

Documentation

The instructions for all the programs are contained in a rather small six page booklet. It is very brief, but all the information is to the point, and is any case, the program menus are self explanatory and shouldn't cause any problems

Conclusions

All the programs are written in Basic and are not protected so you could possibly tailor them to your own particular idiosyncrasies. For instance, you could replace the dreaded 'other' with something more profound, or change some of the expense headings.

Generally the screen displays are all rather bitsd and a few audible prompts would not have gone amiss. To make full use of the *Diary* and *Expense Manegers*, you really need a printer to take a hard copy reference. It is much more convenient to look through your printouts than to load the program, load the data and search it, especially if the file is on cassette. Under test the menus seem fairly idiot proof, but the RUN/STOP and RESTORE keys are not disabled so be careful. At £12.50 for tape and £15.00 for disk the package is good value and should make a worthwhile addition to any software library.

Under review	Home Manager
Description:	Suite of packages for managing home accounts, diary and addresses for the Commodore 64
Supplier:	Abrasco
Address:	The Grange Barn Pikes End Eastcote, Middx
Telephone:	01-866 2518
Summary:	Good value for money
Price:	£12.50 (tape) £15 (disk)

ORDER FORM

Qty	Title	Price
.....	Vic 20 Machine Code	£5.95
.....	Easy Programming for the Commodore 64	£5.95
.....	Commodore 64 Assembly Language	£6.95
.....	The Commodore 64 Music Book	£5.95

I enclose a cheque for £..... made payable to Shiva Publishing Ltd. For payment by Access/Barclaycard/American Express:

Card No .....

Signature .....

Name .....

Address .....

Please send full catalogue of computer books and software

CU

ATLANTIS SOFTWARE LIMITED

URGENTLY REQUIRE MORE

HIGH QUALITY ACTION GAMES

FOR THE CBM 64 & VIC 20

If you have written an exciting and original game for the CBM 64 or Vic-20 we would like to talk to you. If the game is good, we will pay high royalties on world-wide sales.

In the first instance, send a copy of your game, together with any instructions to:

Michael Cole
ATLANTIS SOFTWARE LIMITED
19 Prebend Street, London N1 8PF

Anger Productions — CBM 64 Software

FLIGHT SIMULATOR Original for 64!
Pilot your aircraft to the airport of your choice in U.K. Recall your position on the map at any time during your flight and experience the thrill of take off, flight and landing
Joyshick preferable **Cassette game £9.95p**

YANTZEE
Play this very skillful old Chinese dice game, either by yourself or with your family and friends (Up to 4 players) Great family game for Xmas **Cassette game £7.50p**

PLAY GOLF
Take up the challenge to play Golf on this 18 hole par 72 course Play to full PGA Rules and learn the game or improve your handicap at home. **Cassette game £7.50p**

Order any two games and receive our excellent ASSEMBLER *FREE* worth £8.95
Help yourself to learn how to write read and copy your own machine code programs.

LIFETIME REPLACEMENT GUARANTEE C.O.D
To order just complete the coupon and mail it to us with your remittance

Name
Address

Flight	£9.95 ☐
Golf	£7.50 ☐
Yantzee	£7.50 ☐

Any combination of programs available on Disk £2 extra ☐

ANGER PRODUCTIONS 14 The Oval Broxbourne Herts EN10 6DQ

UNBEATABLE VALUE

ibico LETTER QUALITY PRINTER

A compact (12" x 2½" x 8"), letter quality printer from Classic Computers with a host of outstanding features at the unbelievable price of £229.00 inc. VAT.

Plugs straight into most computers, with optional adaptors available for Commodore 64 and Sinclair Spectrum. Compatible with BBC A or B and any computer with parallel interface.

• Prints 12 characters per second • Elite type (12 characters per inch)• Bi-directional printing • Logic seeking • Plain paper — uses your letterheading • Up to A4 size paper • Instant change ink roller • 96 characters, full UK ASCII code • 80 columns • Separate power switch • On/off pilot lamp

FULL 12 MONTHS PARTS & LABOUR GUARANTEE.
FULL 21-DAY MONEY BACK GUARANTEE FOR MAIL ORDER CUSTOMERS.
CALLERS WELCOME.

CLASSIC COMPUTERS

A Division of Classic Typewriters Ltd
Established over 30 years
5/6 LANSDOWNE HOUSE, CHRISTCHURCH ROAD, BOURNEMOUTH. BH1 3JP Tel (0202) 23456

To Classic Computers, 5/6 Lansdowne House, Christchurch Road, Bournemouth BH1 3JP
Please supply

Ibico LTR 1 letter quality printer	£229.00
Printer cable for BBC A or B	£17.95
Adaptor for Commodore 64	£29.95
Adaptor for Sinclair Spectrum	£39.95

I enclose a cheque/P.O. for £
(Plus £3.50 for postage and packing)
Please debit my Access/Barclaycard Card No ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Expiry date
or telephone your credit card order

Name
Address
Post Code
Tel No

CLIFF HANGER

AUTHOR – JAMES DAY ORIGINAL MUSIC – BRIAN DOE

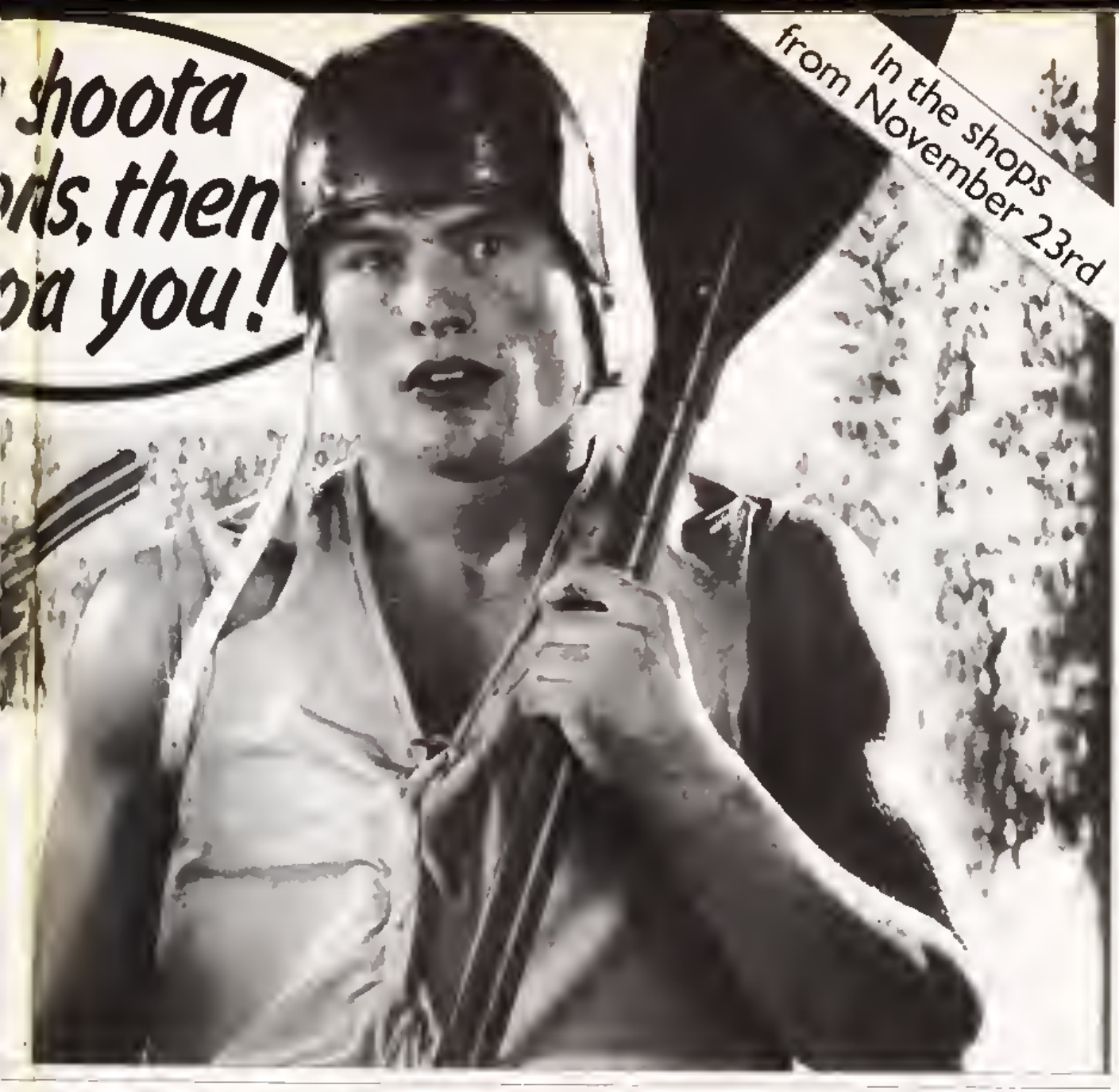
Thrill to the cartoon style action of Cliff Hanger, a really original, Wild West game As Cliff the hero, you've got to stop the bandito shooting up the canyon. But with its own brand of wacky cartoon action fun, things simply aren't as they seem in Cliff Hanger. For a start, the boulder you throw at the ol' bandito may just come bouncing back at you.

Cliff Hanger incorporates all the elements that have made New Generation games best sellers for the Spectrum, such as original ideas, superb graphics and hilarious happenings – but now it's available first for the Commodore 64.

Featuring 50 separate screens, three levels of difficulty, one or two players scoring, Hall of fame and joystick compatibility or user defined keys, Cliff Hanger is set to be **THE** Commodore games playing sensation. Available from any good software store for just **£7.95.**

Selected titles of New Generation Software are available from your local computer store and larger branches of

John Menzies WHSMITH Boots WOOLWORTH Spectrum



Shoot the Rapids

AUTHOR – PAUL BUNN

Ever wondered what it would be like to face the fierce white water in a top class canoeist slalom run? Well wonder no more because you can enjoy the fast action thrill of competitive canoeing from the comfort of your own armchair with Shoot the Rapids.

It's a game that involves real skill because you must move your joystick to simulate paddling action. You must get through the gates of the slalom course in the fastest time possible, while avoiding the river bank and rocks. There are also extra hazards like rogue speed boats and interfering beavers to worry about.

This multi level game features increasingly difficult river courses with superb graphics and smooth scrolling along the river. Qualifying times have to be reached to move onto the next course.

With Hall of Fame, one or two player scoring and joystick compatibility, Shoot the Rapids is probably the best sports action simulation game devised to date. Available from any good software store for just **£7.95.**

New Generation Software

NEW GENERATION SOFTWARE
FREEPOST Bath BA1 4TD
Tel: 0225 316924

GSH

New Generation products are sold according to their terms of trade and conditions of sale

RICHARD SHEPHERD SOFTWARE

A HOME BUDGETING & BANKING SYSTEM THAT REALLY MAKES YOUR COMMODORE 64 WORK!

NOW ON CBM 64 DISK*AND CASSETTE

A professional style multi function Cash Controller program. In disk format you can load, and make an entry . . . or update your existing records . . . in just seconds. This easy to use program can handle up to 400 transactions, giving instant statements of your bank balance. Now there's no excuses for going into 'the red' and paying unnecessary bank charges!

BANK ACCOUNT

- Statements on demand from any date to date
- Holds up to 400 transactions
- Standing order facility
- All transactions can be automatically coded to allocate up to 16 budget headings
- Search facility for any single item by description or amount

HOME BUDGETING

- 16 budget headings, e.g. Gas, Rates, Car, Tax - you can choose the headings
- Highlights under/over spending
- Full budget expenditure breakdown
- Budget "re-think" facility

LOAN/MORTGAGE CALCULATOR

All you ever wanted to know but didn't like to ask! Calculates

- **Interest rates**
- **Payback periods**
- **Capital sum**
- **Period of loan**

- **PRINTOUT FACILITY**
- **FULL SECURITY WITH PERSONAL PASSWORD**
- **SAVE DATA ONTO CASSETTE OR DISK**

Available from good computer stores or direct by mail order **at a price that won't upset the Bank Manager!**

CASSETTE
£9.95
INC P & P

DISK*
£14.95
Compatible only with 1541 Disk Drive

INC P & P
Dealer enquiries welcome.
Generous discounts.

PRIORITY MAIL ORDER

Please send me _____ CASH CONTROLLERS
at £9.95 each 64 Cassette ☐ Please tick
at £14.95 each 64 Disk ☐ version required
including post & packing (overseas orders add £1.50)

Name _____

Address _____

_____

_____

I enclose a cheque/P.O. payable to Richard Shepherd Software

Or debit my Access/VISA Card Number

Signature _____

ALSO AVAILABLE ON CASSETTE FOR 48K SPECTRUM

All programs are sold subject to the conditions that they may not by way of trade or otherwise be lent, hired out, resold or otherwise circulated without the written permission of Richard Shepherd Software Ltd

24 Hour Credit Card Hotline (06286) 63531 REMEMBER TO STATE IF YOU REQUIRE CASSETTE OR DISK

RICHARD SHEPHERD SOFTWARE
ELM HOUSE, 23-25 ELMSHOTT LANE, CIPPENHAM, SLOUGH, BERKS. TEL. (06286) 63531

"dialog...

SOFT ON YOUR POCKET TOUGH ON OUR COMPETITORS

DFM Database
Easy-to-use, Big-System Features, Printed Reports, Mail Labels Option. Available for CBM 64 • BBC • Spectrum £24.00 Disk or tape/ SPECTRUM £14.95/DFM + Labels £30 00.

Home Accounts
Bank Account, 20 Expense Headings, Name & Address File, Loan/Forecasts. Available for CBM 64 • BBC • Spectrum. £14 95 Tape/£16 95 Disk

Transact
Book-keeping System, All Day Books, Journal, Nominal Ledger, VAT. Available for CBM 64 • BBC 'B' £30.00 Disk or Tape

Invostact
Invoice & Statement Generator, Automatic Creation from Sales Product Table Available for CBM 64 • BBC 'B'. £30.00 Disk or Tape

Stock-Aid
Stock-Control System, Extensive On-Screen & Printed Reports Available for CBM 64 £30 00 Disk or Tape

Electronics
Study with Course Tutor to City & Guilds Standard Available for CBM 64. £14 95 Disk or Tape

- All disk software has now been improved—the Commodore Disc range has now been written in machine code.
- Spectrum software is now microdrive compatible.
- All our software has been re-packaged—this means that the boxes are smaller and there is more descriptive copy about the program on the back of the box.
- Buy directly from us—alternatively if you write or telephone (Address and Telephone number are at the bottom of this advertisement). We will send you an informative Dealer Pack.
- Watch out for our QL Sinclair Software! It will be available sooner than you think.

The entire software range is available from Micro Dealer UK
Telephone Welwyn Garden City
07073 28181
and select title ranges are available from
Websters Software. Tel. Guildford 0483 62222
PCS Distribution. Tel. Darwen 0254 691211 and all Boots outlets

PLEASE SEND ME FURTHER DETAILS OF YOUR COMPLETE RANGE OF PROGRAMS FOR

☐ CBM 64 ☐ BBC ☐ SPECTRUM

NAME _____

ADDRESS _____

_____

_____

TELEPHONE _____

DIALOG SOFTWARE
293 Copperfield, Limesfarm Estate, Chigwell, Essex. Telephone: 01-501 0799
Barclaycard and Access accepted

Three programs everyone's talking about!

Play the most exciting, challenging Olympic simulation of them all!

MICRO OLYMPICS

MICRO OLYMPICS is riding high in the charts – and no wonder. You are challenged to beat the world record in 11 realistic track and field events, with the packed stadium cheering you on to victory – or defeat! Just like the real thing, you'll want to keep on improving your sporting skill until you're up there among the greats!

Turn your home micro into a true office workhorse!

MINI OFFICE is the most incredibly priced introduction to business computing ever offered. The package contains four full-scale programs – word processor, database manager, spreadsheet and graphics. They include advanced features not yet available on programs costing many times as much. Plus a concise 32-page how-to-do-it booklet.

Let your children embark on a magical micro adventure!

THE MAGIC SWORD breaks new ground in programming for the young – a complete adventure on cassette accompanied by a 48-page full colour storybook. Stunning sound and colourful graphics bring a completely new dimension to the classic computer adventure. And there's a very helpful animated compass to help you find your way around!

Send for them today

Please tick copies required

☐ I enclose cheque made payable to Database Publications Ltd for £ _____

I wish to pay by

☐ Access

☐ Visa No _____ Expiry date _____

Name _____

Address _____

_____

Signed _____

Post to: Database Publications, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY

	Micro Olympics	Mini Office	Magic Sword
Spectrum cassette	£5.95 ☐	COMING SOON	COMING SOON
Commodore cassette	£5.95 ☐	COMING SOON	£8.95
BBC 'B' cassette	£5.95 ☐	£5.95 ☐	£8.95 ☐
BBC 40 track disc	£7.95 ☐	£7.95 ☐	N/A
BBC 80 track disc	£7.95 ☐	£7.95 ☐	N/A
Electron cassette	£5.95 ☐	£5.95 ☐	£8.95 ☐

CBM64 OCTOBER VIC-20

1	(5)	Daley's Decathlon	Ocean	1	(3)	Chariot Race	Microantics
2	(2)	Decathlon	Activision	2	(–)	Pancho Shooter	Mastertronic
3	(2)	Beach Head	US Gold	3	(–)	Snooker	Visions
4	(–)	Monty Mole	Gremlin	4	(–)	Crazy Hens	Interceptor
5	(–)	Zim Sala Bim	Melbourne	5	(1)	Flight Path 737	Anirog
6	(–)	Death Star Interceptor	System 3	6	(–)	Maze Gold	Visions
7	(–)	Kokotoni Wilf	Elite	7	(5)	Undermine	Mastertronic
8	(8)	International Football	Commodore	8	(9)	Wiz and Princess	Melbourne
9	(6)	Encounter	Novagen	9	(15)	Ronjo	Anirog
10	(3)	Arabian Nights	Interceptor	10	(–)	New York Blitz	Mastertronic
11	(–)	Havoc	Dynavision	11	(7)	Sub Hunt	Mastertronic
12	(–)	Pitfall II	Activision	12	(4)	Punch	Mr Micro
13	(14)	Strip Poker	US Gold	13	(11)	Tower of Evil	Creative Sparks
14	(–)	Hero	Activision	14	(15)	Flight 015	Ferranti
15	(4)	Micro Olympics	Database	15	(10)	Duck Shoot	Mastertronic
16	(–)	Evil Dead	Palace	16	(12)	Computer War	Creative Sparks
17	(–)	River Raid	Activision	17	(2)	Vegas Jackpot	Mastertronic
18	(15)	Manic Miner	Soft Projects	18	(–)	Rambler Punch	Commodore
19	(16)	Cavelon	Ocean	19	(13)	Jet Pac	Ultimate
20	(–)	Astro Chase	Stateseft	20	(6)	Hell Date	Llamasoft

TOP 3 MANUFACTURERS:

ACTIVISION
US GOLD
OCEAN

TOP 3 MANUFACTURERS:

MASTERTRONIC
CREATIVE SPARKS
NOT DISCERNABLE

COMPILED BY RAM/C, LONDON
Data represents September sales from 250+ specialist retailers

Take five for

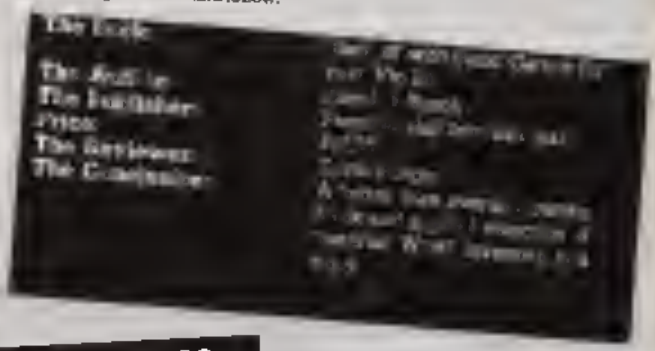
Blast off with Basic Games for your Vic 20

A games book for the Vic with 25 playable games. All yes you say, but what about the errors in the book as with other games listings? Yes I did find some errors, but nothing serious enough to put me off. The problem seemed to be that the programs had been typeset, although the introduction claims they were produced directly from a daisywheel printer. All the Vic's symbols have been replaced with abbreviations and each game comes with an explanation of the program.

There are nine arcade games, some of them have a joystick option. One draw routine that uses a joystick, a decipher game, a piano keyboard tutor and a clever game called *Mixup*, is just as sample of the delights included.

There is a flowchart for each game which is very useful and is a nice touch especially if you decide to adapt the program or you just want to find out exactly what's going on. There are a couple of games that require expansion, but any expansion will do. All games that are not for the 3.5K Vic or those that use a joystick are clearly marked. The range of programs covers most types of games.

The book is an American import and this is reflected in the price. Despite that, this book is worth a look if you really are interested in games and eventually want to write your own. All of the programs work (eventually) and are easy enough to enter and follow.



Getting the most from your Vic 20

This book, as the title suggests, is supposed to cover a great number of applications for the Vic, and one assumes there'll be a great deal of explanation on just how to use your Vic in a fruitful way.

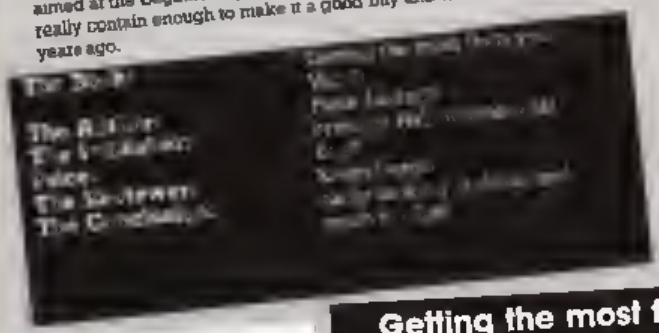
The book is split into three sections; the first is entitled Getting to know your Vic and covers a range of topics including printing. The Vic clock, programmable function keys – these are the most worthwhile parts of this section.

Section two is entitled Applications Programs and covers applications like managing money and calculating loans. The best of this section is a logic simulator, which is very elementary, but interesting.

The last section is the Appendix which, as expected, covers the usual screen, colour and ASCII maps and codes, followed by a useful index.

So for your £8.95 you get 136 pages of very well presented listings and text. And the text does give you an awful lot of information about the areas of the Vic that are covered. But the programs are rather old hat and simple, at least they seem to be 'bug-free'.

The real problem is that the book is very simple and is as Prentice Hall say aimed at the beginner – probably the younger beginner. Even so it does not really contain enough to make it a good buy and would not have been three years ago.

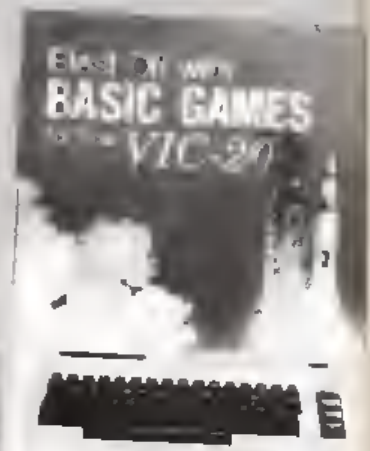


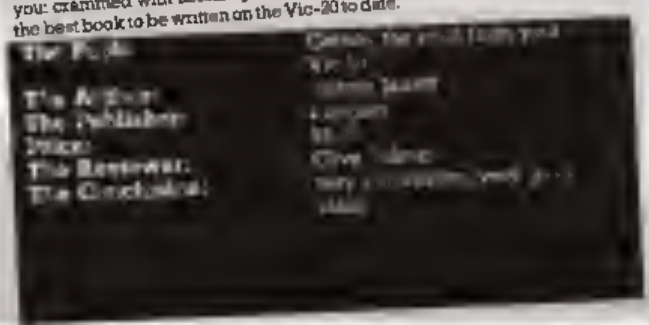
Getting the most from your Vic 20

After reviewing many books supposedly aimed at Vic-20 users, it is refreshing to find one which does exactly as its title suggests.

Getting the most from your Vic-20 though written by the former Editor of this magazine, is not just a collection of his thoughts and ideas but also includes helpful hints given by Vic-20 users in general (including contributors to **Vic Computing** and **Commodore User**). For that reason alone this book is a must and certainly worth a place on all Vic users' bookshelves.

Many topics are covered, all of which should satisfy even the most demanding users – I particularly liked the chapters on the Super Expander, the Vic's printers, floppy disks on the Vic, and 'How to create your own Characters'. In this sense, Getting the most from your Vic is like having several manuals in one and at £5.95 represents excellent value for money. If you want to understand what your Vic is really capable of doing, this is certainly the book for you: crammed with useful tips, a goldmine of information. In my opinion it is the best book to be written on the Vic-20 to date.





the Vic-20

Mastering the Vic 20

The book starts with a good introduction which explains the format of the listings and text, it also thoughtfully tells you to skip the first chapter if you're not a novice.

Predictably, the book begins with a chapter on setting up the Vic. This is certainly useful to newcomers, but such information is by now widely published. Never mind let's press on.

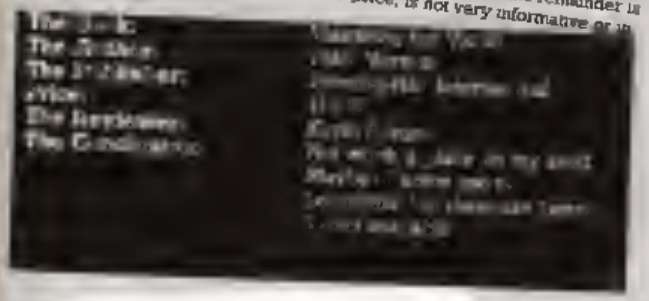
By chapter two we are into programming styles and techniques, and then Basic commands and statements. This chapter is well presented and covers every Basic statement in great detail. Chapter four is entitled 'Entertaining with Basic', but the purpose of the chapter is most unclear. Anyway, it contains a few simple Basic programs and detailed explanation of how they work. The next two chapters are much the same but cover education and home use. The only really useful program is a bar chart program which at least gives the insight into how these charts are created.

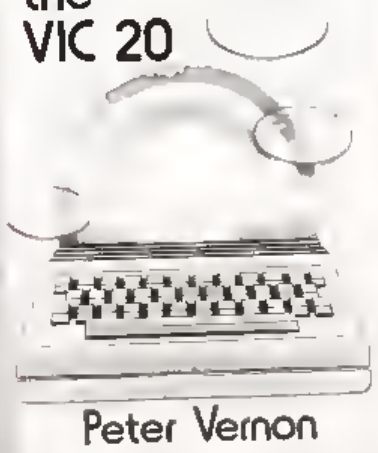
There's a simple section on graphics, creating and using them from the very simple PRINTing command to user-defined graphics and Hi-res - not enough of the latter two subjects, though. A chapter on Music does include a piano keyboard program and a few reasonable sound effects.

Chapter nine takes us into machine code (at last). Here we have a reasonable explanation of binary which deals with calculations in binary and hexadecimal. That's about it for machine code except for a couple of poor examples of plotting (positioning the cursor) and a few of the system routine entry points.

Chapter ten has literally a few words to say on printers, drives, cartridges, joysticks and memory expansion. There is also a very scanty set of Appendices bringing up the rear.

It is difficult to know what to say about such a book. The first few chapters were reasonable and did manage to whet the appetite, but the remainder is very disappointing and considering the price, is not very informative or instructive.





The last Vic 20 book in the World

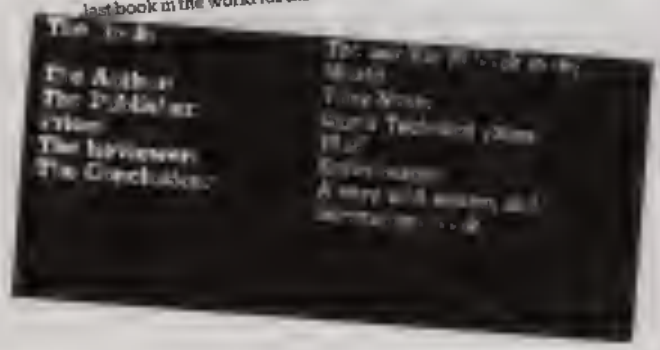
A collection of 28 programs that purport to be of interest to all ages. That could well be, as the topic area certainly covers pre school children as well as parents. However, granny may have some trouble getting her teeth into this one.

The book includes an essential symbol list since the program have been listed on a Commodore printer. There is also a note on troubleshooting, in other words the most likely errors that you might make when entering the programs.

The content includes a few games; such as Galactic Adventure a strategy game for the unexpanded Vic. Zoo Quest and Indian Ian are the only two that require expansion. In Zoo Quest the player must hunt and capture animals whilst avoiding the keeper. Ten Green Bottles, introduces algebra to the accompaniment of the tune of the same name. There's also a game to improve your vocabulary, called Word Find.

Many of the programs are based around addition, subtraction and division, designed for younger children with adult supervision of progress. Indian Ian is worth a mention, it is designed to help young children distinguish between different sounds in pronunciation. It seems to work fairly well although it was not tested using a young child, but instead a very old one, namely yours truly.

All the programs have an educational element and would be very welcome around the home although perhaps not so welcomed by teachers in the school. A good buy for your child if you happen to have a Vic lying around somewhere. The only criticism is the title and hopefully this will not be the last book in the world for the Vic.



The Forth Dimension:

Programming with a DIY Language

Part three – the Stack

by Richard G Hunt

The word (DUMP) which I defined last time is a rough and ready example of how to obtain a desired result without knowing too much about the techniques. It works after a fashion, provided the dumps are not too large – in which case it tends to go bananas.

To tell the truth I have not actually discovered the reason for this but I guess it has to do with the stack...

Use of the stack is paramount in Forth, and words that relate to it are important. There are words that affect the number of items on the stack, like (.), (U.), (DROP), (DUP). And there are words that change the order of items on the stack, like (SWAP), (OVER), (ROT).

The functions of these words are simple and reference to your system manual should provide a stack diagram to show the effect on the stack. We have seen all of these in use in the word (DUMP).

Obviously operations may be performed only on the top of the stack, and it is necessary to make sure that the required value is there. These words handle pretty well – any stack ordering problems, especially as a basic tenet is 'keep things simple and don't put too much on the stack that cannot be easily handled'.

Clearly though, there may be occasional need for words that operate at greater stack depth. These words must usually be defined by the user; moreover, their definition illustrates further stack manipulation.

(PICK) requires a value *n* on the stack as a parameter and then copies the *n*th item to TOS. Its definition is straightforward referencing (SP@) which is a word that pops the value of the stack pointer to TOS.

```
: PICK 2 * sp@ + @ ;
```

(ROLL) is similar, but it removes the value from the *n*th position and puts it at TOS. In passing it should be made clear that the stack holds each value as a 16-bit number – two bytes per number. This is why (PICK)'s parameter value is multiplied by 2. (ROLL) serves to introduce both variables and the return stack. (Oh no, not another stack!)

```
0 variable stackindex
0 variable retindex
: ROLL dup dup stackindex !
retindex !
pick
begin -1 stackindex +! >r
stackindex c@ 0 = until
drop
begin -1 retindex +! r>
retindex c@ 0 = until ;
```

These two words work also, although I have seen an alternative definition of (PICK). If I now spend a little time on variables things may become clearer.

Forth supports both variables and constants, though they are used much less often than in Basic – mainly when the stack itself is unsatisfactory for the purpose in hand. This is clearly the case when trying to access a value not in the first three items. It is necessary to declare both variables and constants before use:

```
>0 variable green-bottles·
>31416 constant pi<
```

The word (VARIABLE) is itself a defining word, just as (:) is. How it differs is not relevant at this point – it is enough to know that by using this word in this fashion variable numbers may be accessed and indeed varied. For example

```
>10 green-bottles ! green-
bottles @ .< 10 OK
```

The words (!) (store), (+!) (plus store) and (@) (fetch) enable values to be entered incremented decremented and read. Another example

```
> -1 green-bottles +! green-
bottles @ .< 9 OK
```

I should think the actions are evident.

The return stack is similar to the stack we have used so far. It is used normally by the system to keep track of parameters in use, as for example in loops. We have already mentioned the word (I) in a previous article; it fetches the loop index to the data stack – actually it copies the top of the return stack to the data stack. Its action is identical to (R>) (from R). (To R) (<R) pushes the top of the data stack to the return stack.

So in (ROLL) we are using two variables to hold the parameter which is the depth of the item to be accessed. The actual stack items are pushed to the return stack (in reverse order) until the required depth is reached. The value is then (DROP)ped, and the return stack is cleared by a similar procedure. Clearing the return stack is essential every time it is used in this way – otherwise the system will hang up on you in no uncertain manner! I'll explain the (BEGIN) structure next time.

A brief look at constants. Like (VARIABLE), (CONSTANT) is a defining word ... but its behaviour is slightly different. Values may be assigned in the same way. Use of the value may be demonstrated by evaluating the circumference of a circle with radius (r) employing the constant (pi) defined above.

```
: RADIUS ."gives a
circumference of"
pi * 2 * 10000 /mod . "." . ; (n --
--)
```

(pi) pops the value of the constant on to the stack so that the expression may be evaluated by the operators (*) and (/). (RADIUS) has been defined so that the conversation looks something like English.

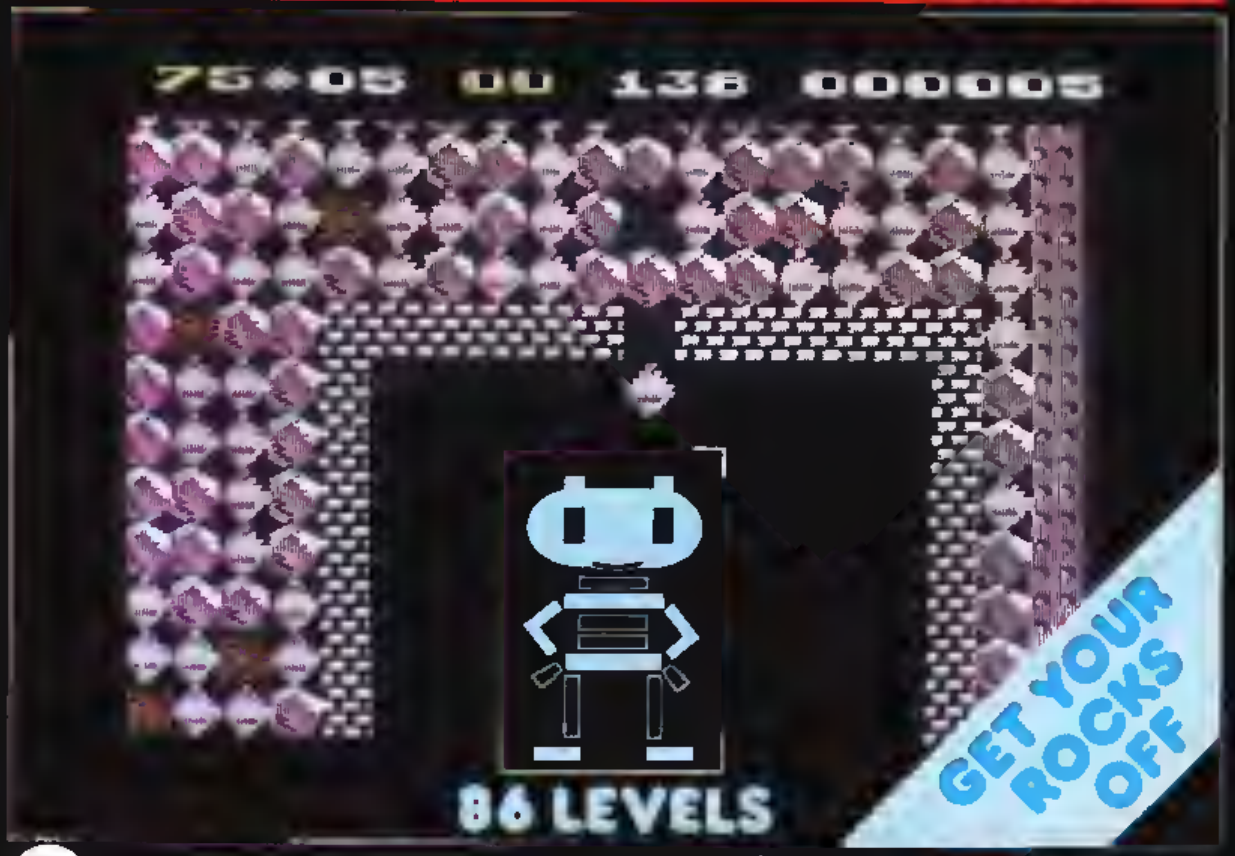
Incidentally there was no need here for floating point arithmetic, and, for the precisionists, I do know that the value of pi is relatively imprecise. Refer to Brodie's *Starting Forth* for a pretty good integer approximation of pi.

The only remaining question is why bother to have two very similar functions in Forth. Obviously a frequent constant value is more conveniently accessed by name. Its value (by definition) is relatively unchanging.

With a variable, however, it is the *location* of the value that is more important as the system needs to operate on the value at that *location*. These are apparently small differences: but they allow for efficient handling, and are vital to understanding the more advanced techniques of defining your own defining words. This pleasure is to come in a later article.

BIGGER, BOULDER, More BEAUTIFUL

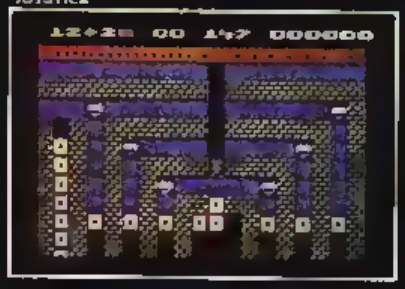
AMERICAN NO 1.



JOYSTICK

BOULDER dash

commodore 64



CASSETTE 8·95 DISK 10·95

State Soft Ltd.
Business & Technology Centre,
Bessemer Drive, Stevenage,
Hertfordshire SG1 2DY.
Phone (0438) 316561.

Statesoft

Really Something Else

MAY WICO BE WITH YOU

When you're up against all the evil in the universe, you need the finest joystick. Weak, sticky, slow controls can only lead you to your doom.

You need a Wico.® The controls in more than 500 modern arcade games are actually made by Wico.® They set the industry standard for durability and performance. And the same arcade quality goes into the Wico® you take home.

Wico® joysticks work directly with the Commodore 64™, Vic 20,™ all Atari® Home Computers and Atari® Video Games.

Add an interface, and you can connect into a Sinclair Spectrum or Apple II® and IIe.® If you have a new MSX computer there's the just released MSX Grip Handle for you.

What do you get? A man-sized handle on a virtually unbreakable shaft. Tough, ultra-sensitive Wico® switchgear. A heavy-weight base. A year's guarantee. And more sheer dodging, chasing and blasting power than ever before.

The Wico® range includes the famous Red Ball,™ straight out of the arcades. The Three Way Deluxe with interchangeable handles. The light but rugged Boss. And check out the state-of-the-art Trackball® many owners use it for serious programming, where it gives them effortless cursor control.

Ask your dealer to let you handle a Wico® Quality (you'll find) costs money.

But if you want to have less trouble fighting your controls, and more power for fighting the forces of darkness . . only Wico® is worthy of your hand.

WICO®

THE FINEST HAND CONTROLS IN THE KNOWN UNIVERSE

CGL HOUSE, GOLDINGS HILL, LOUGHTON, ESSEX IG10 2RR. 01-508 5600. LOOK FOR THE WICO NAME IN ALL GOOD SHOPS AND CATALOGUES

WIN £25,000 AND SAVE THE WORLD

Eureka!

250 K OF PURE MYSTERY BY IAN LIVINGSTONE

- 5 complete Adven[illegible] in one multi-load mega-prog[illegible] is the ultimate computer Epic
- Epic in scale "Eureka!" spans th[illegible] You battle against the dinosaurs [illegible] his gladiators join the Knights of the R[illegible] escape from Colditz and finally into 1984 defeat the evil master of the Caribbean who is holding the world to ransom
- Epic in sheer size — there's more than 250K for you to get yourself killed in

Spectrum 48K or Commodore 64 (Turboload)

Full-colour booklet, packed with cryptic clues to help you unravel the mystery — and win the £25,000 reward

Music and sound effects built in

5 PROGRAMS IN ONE

- All 5 Adventures are linked — but you can choose to play them separately And they all have REAL TIME built in So if you don't think fast, you wind up as a pterodactyl's lunch, die of over-exertion in a Roman orgy, or just lose your mind
- "Eureka!" is not just an Epic — not just an Adventure At the start of each historical era, you face an Arcade Action test, to decide your strength level for the Adventure to come
- The better your score, the stronger and faster you'll be
- And it'll keep you on your toes, with constantly changing, static and moving graphics Brilliant music and sound effects add to the excitement
- As part of the "Eureka!" pack, you receive a full-colour illustrated booklet, containing cryptic riddles and mysterious illustrations. Using booklet and screen *together*, you steadily unravel the clues and build up a secret phone number piece by piece
- If you're first to ring it you save the world and collect the £25,000!

High quality, full-colour, static and moving graphics

Just clip the coupon. Or, for even faster action, order by Credit Card on the "Eureka!" Telephone Hotline 01-460 6000.

Eureka!™

THEN THE RACE IS ON!!!

DEVISED BY IAN LIVINGSTONE

The storylines for "Eureka!" are by Ian Livingstone, whose "Fighting Fantasy" books have sold over 2 000,000 copies He's dreamed up some rather nasty tricks and twists for you in this Epic, because he has also devised the cryptic clues and conundrums in the booklet that goes with the program He's the one who knows the answers

"Eureka!" was programmed by Andromeda teams led by Hungarians Donat Kiss and Andras Csaszar It took the equivalent of 5 YEARS to create and the skills of 4 graphic artists, 2 musicians and a professor of logic too We told them to stretch the hardware's capabilities and make sure you were kept awake for hours!! They've done it

Available from all good software retailers, or if any difficulty use the coupon or Hotline telephone number 01-460 6000 NOW.

Send your order now to "Eureka!" FREEPOST Dept 400 Mount Farm Milton Keynes MK1 1HQ

NO STAMP NEEDED

To "Eureka!" FREEPOST Dept 400 Mount Farm Milton Keynes MK1 1HQ

Please send me "Eureka!" packs complete with cassette full-colour booklet instructions and rules, at £14 95 each PLUS 55p post & packing.

MY COMPUTER IS	No. ordered	Total of £15.50
COMMODORE 64		
SPECTRUM 48K		
	TOTAL £	

24 HOUR PHONE HOTLINE NUMBER 01-460 6000 For Credit Card Orders

I enclose payment by cheque PO payable to DOMARK LTD

OR Please charge my Credit Card VISA ☐ ACCESS ☐ AMEX ☐

Card Number

Expiry Date _____ Date _____

Name _____ Signature _____

Street _____

Town _____ Post Code _____ CU

The race for the £25 000 starts on 31 Oct 1984 and closes on 31 Dec 1985

Domark Ltd 228 Munster Road London SW6 Reg No 1804184 (England)

Electrifying Action

Storm Warrior

He needs no alias, his stratum and ability will prove him warrior of the name – Storm Warrior.

Storm Warrior is a 12 screen, [illegible] first rotating graphics adventure using [illegible] of [illegible] features [illegible] of [illegible] playing [illegible] modes on the first four screens, [illegible] and a fast loading system.

Commodore 64 Tape [illegible] (Disk [illegible] including VAT)

The White Viper

[illegible] graphics adventure in the [illegible] of [illegible]. Combat [illegible]

Commodore 64 Tape [illegible] (Disk [illegible] including VAT)

Dead City Rescue

[illegible] fast loading, [illegible] screen graphics adventure [illegible] different [illegible] of [illegible] to give an [illegible] depth of [illegible]. Mentally stimulating, strategy packed, visually stunning.

Commodore 64 Tape [illegible] (Disk [illegible] including VAT)

Runner

Meet the Challenge

[illegible]

Do it with a database

An introduction to managing information on Commodore machines

by Karl Dallas

You're writing to old friends and you can't remember their addresses; or you're the secretary of a club and you need to write to members who still haven't paid their dues. What do you do? You look them up in your records, of course. Similarly in business; you'll probably need to search through a stack of record cards to get at the information you require.

In all those cases, a database could make life easier for you. Karl Dallas introduces the concept of information storage and management on computers and gives a few personal recommendations of packages specially designed for Commodore machines.

Most people solve their name-and-address problem by keeping an address book. If there are a lot, you could keep them on index cards, adding information like birthdays, children and so on.

In a business, you could tag each record card with a little signal: red tag means account unpaid, blue means dormant account, yellow means very good customer worthy of special treatment, and so on.

And then, suppose you want to circularise all your male customers in Surrey who drive cars of over 2000cc and who holiday out of season, recording the responses as they come in, and then sending a follow-up letter to those who replied positively, plus a reminder to those who didn't reply at all? You could find yourself spending more time up-dating the cards than handling the business they're supposed to help you with.

These aren't new problems, but they're the sort of problem computers might have been invented to solve. They all have to do with information management.

The electronic card index box is generally known as a database. Properly, the term database applies to a central bank of information into which a number of people can dip at will. A single-user store of information should more properly be called an Information Storage and Retrieval System, but database is snappier, so we'll avoid purism and refer to individual systems as databases.

It's a sort of electronic card index, and this is so true that one of the best-known versions (not for Commodore kit, unfortunately) is actually known as Cardbox. You can use it to index anything from membership or any other mailing list to the contents of a record library.

Sorting out your information

But how are you going to index them? Are you putting them in the box in alphabetical order of surname? Makes sense. But then, your business is expanding, and you've taken on a couple of representatives, one for customers north of the Wash, one for those in the South. Easy: subdivide the cards, keeping them in alphabetical order within the two divisions. Yes, but you must have a master file at head office. Then copies will have to be made. And when you get a new Midlands rep, you'll want to write to those customers telling them that instead of Mr Bloggs or Ms Scroggs, your new Mrs Cloggs will be calling on them in future.

But you'll need to check throughout the entire file sometimes, because you're paying a bonus on the basis of total new business done, plus a special reward for your smartest salesperson who generated the most business for you.

You could keep another set of records, recording sales, and then another set for those who only deal with the nuts and bolts division, and not with the odds and sods division.

The problem, you see, is that a card is two-dimensional. For each new way of organising your information you need another box of cards – or you need to shuffle them into a new kind of order: geographical, size of business, representative's territory, credit rating, amount owing, type of products required.

To most of us, three dimensions is as many as we can handle. But a computer regards a dimension as just another mathematical characteristic, so that if you're programming, you can get quite used to dimensioning arrays 255 different ways. So this is where an electronic database scores over the box-and-card variety we all know so well.

Keys and Fields

Each of these ways of indexing the *Record* cards is based on what is called a *Key*. Your card index had an alphabetical key. Many database programs give you the option of several keys: sometimes a primary key (alphabetical, perhaps) plus several secondary keys (geographical, type of business, turnover, etc).

Others allow you to redefine any of the *Fields* of the record (surname, town, category) as a key whenever you want to.

Interestingly, very few programs actually sort the material into different order each time you redefine a key. Usually, some sort of index of each key is kept as a separate data file on disk or tape, and switching keys really means switching indices. So, you see, the computer isn't really any smarter than you. It still has to keep a different 'box' for each different way of ordering the lists.

Looking around

When you are looking at a database program, the most obvious guides to how powerful it is are:

- how many key fields can you have?
- how many fields to a record?
- maximum length of a field?
- maximum length of a record?
- how many files to a disk?

This last will usually depend upon your disk size. For instance, in Commodore equipment you'll get more data on the double-sided 8250 twin-disk drive (1,066,496 bytes, or roughly, a million characters each disk) which goes with the 8000 series of business machines. On the single 1541 disk that goes with the Vic or 64 home machines you'll get 176 thousand bytes). So if you have a limit of 500 characters per record, you'll get six times as many of them on the disk with the bigger capacity.

If the program can handle its data across twin disk drives, and can instruct you when to change the disks, theoretically its size should be unlimited. One program claims a data file limit of 65,535 records of 254 bytes each. That adds up to a mighty 16 megabytes of data. And it runs on a Commodore 64, which only has 38,911 bytes of memory available to the user – pretty good going.

Another thing you'll need to know is how versatile the program is. Can you arrange records any way you like (within the limitations of the equipment), or has it all been predetermined?

VIZASTAR 64

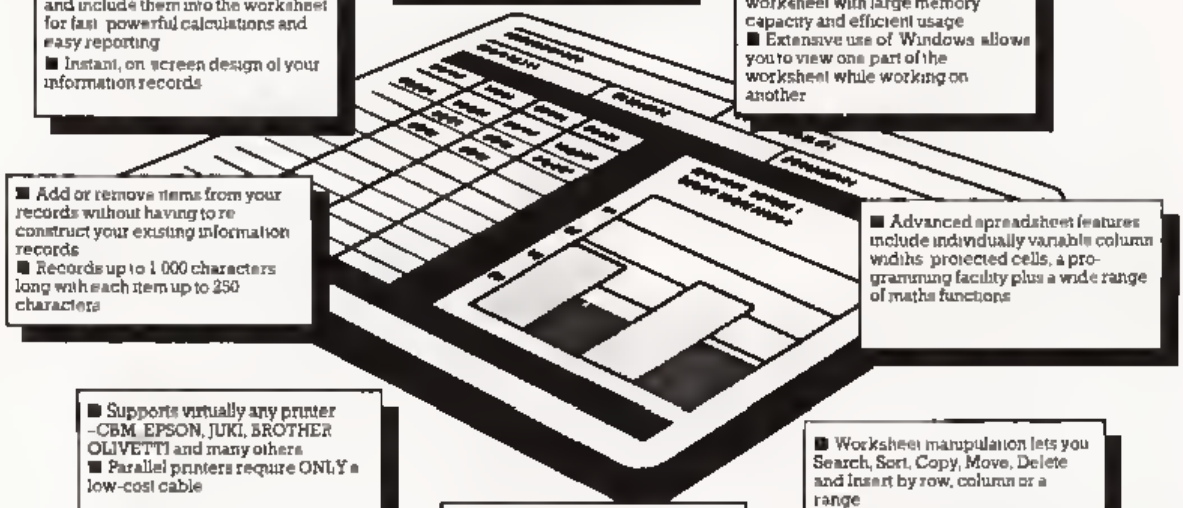
THE INFORMATION PROCESSOR

■ Spreadsheet ■ Database ■ Graphics

■ One word menu lines for easy selection of facilities.
■ The high resolution grid pattern frames the worksheet giving an easy-to read display

■ Extract from your information files and include them into the worksheet for fast powerful calculations and easy reporting
■ Instant, on screen design of your information records

■ A 1000 Row by 64 Column wide worksheet with large memory capacity and efficient usage
■ Extensive use of Windows allows you to view one part of the worksheet while working on another



■ Add or remove items from your records without having to re construct your existing information records
■ Records up to 1 000 characters long with each item up to 250 characters

■ Advanced spreadsheet features include individually variable column widths protected cells, a programming facility plus a wide range of maths functions

■ Supports virtually any printer –CBM, EPSON, JUKI, BROTHER OLIVETTI and many others
■ Parallel printers require ONLY a low-cost cable

■ Worksheet manipulation lets you Search, Sort, Copy, Move, Delete and Insert by row, column or a range
■ Text editing facilities for letters, invoices report headings etc.

■ Include information directly into the Worksheet from VizaWrite and almost any other system
■ Simultaneous display of work sheet and line or bar graphs

VizaStar integrates three important electronic aids to your business or home office
A fast and easy-to-use package – VizaStar is a comprehensive information processor that includes an electronic worksheet, information filing system and simultaneous on-screen graphics.

VizaStar has been designed to incorporate the very latest in user-friendliness – so now you can handle your all-important information in many new ways and in a quick and effective manner.

The information filing capabilities of VizaStar enable you to store your information onto disk in an ordered and instantly retrievable form. This means that you can quickly pick out individual or entire groups of related information to create lists, statements, labels or reports.

VizaStar is the ONLY program of its kind on the Commodore 64. Completely consistent with the VizaWrite word processor, VizaStar provides a totally comprehensive office system.

VizaStar costs just £99.95 (incl. VAT) from your computer dealer and selected stores. Please write for more details and the name and address of your nearest dealer.

VIZA SOFTWARE

VIZA SOFTWARE, 9 MANSION ROW, BROMPTON, GILLINGHAM, KENT ME7 5SE
TEL: MEDWAY (0634) 813780
Dealer enquiries welcome.

AVAILABLE NOW: VIZASTAR 64
£99.95 (inc VAT)

Is is easy, is it versatile?

The more versatile program may be much harder to operate. For instance, some databases, like Superbase, virtually amount to a programming language in their own right; though in that case a number of commands familiar to Basic programmers (plus some special ones) make it easier than it sounds.

In such a case, a *Menu Driven* program, in which the user just responds to screen prompts, and doesn't have to know anything about the way the program actually works, is easiest to handle.

If you're a programmer, you may want to know how easy it is to modify the program to your own purposes. For instance, *Simply File* is written in Basic, so as long as you can understand what is going on inside the fairly densely-packed code, you'll be able to change it. Machine code is only a little less accessible, if you know what you're doing, but some of the best programs are carefully protected to stop you getting into them and finding out how they work. Some won't even allow you to make safety back-up copies in case someone exposes your system disk accidentally to a magnetic field, which is recommended computer practice.

Fast access to information

You'll also want to know how fast the program works. Most of the time, a computer is so fast, compared with the human brain, that the differences in speed between one program and another are fairly academic, because the real limiting factor is the human element. But when they're manipulating great lists of data, differences in speed can become very critical, especially where some mechanical element comes into play, like a diskette or (especially) a cassette drive.

A cassette-based database that doesn't actually hold all the data in memory at a time, and manipulate it there, is virtually useless. That's because the chore of winding tapes on to the appropriate point, then biting your fingernails while it reads the data, then reSAVEing it after it's been modified in some way, is more than human impatience can stand.

Even using disks, access time can take as long as boiling a kettle, and that's why hard disks were born. You'll also want to know whether the data on your record files can be accessed by other programs: a mailing list address list could be used for a *mail-merge*, with personally addressed circulars produced by a word processing program, for instance. Or financial information could be transferred to a spreadsheet.

Some software publishers have deliberately made it possible for their various programs to interact in this way. **Precision** market the word processor *Superscript* (and they wrote *Easy Script*, a slightly simplified version marketed by Commodore) and they also sell Superbase, and the two can interchange data. In fact, users of the 8296 'business Pet' can get *Superoffice*, an integrated package which allows the user to jump between Superbase and Superscript with a couple of key-strokes, and without losing the work that's been done in each half, either.

If the program doesn't tell you, find out how the data is stored. If it's as ASCII text files, then they are available to any other program that can handle ASCII files.

Among the numerous programs currently available, here's a short list (in order of price) of products eminently worth looking at:

On tape

Infotape 64 – Commodore 64
Beaver Software, *£16.95*

File size depending on record length. 750 records of name and three lines of address fields-per-record times number-of-records must not exceed 3000, report generator with five printing formats, 19 calculator functions, search function includes INS (equivalent of INSTR$). Record format compatible with Infodisk, so can be upgraded.

On disk

Data Manager – Commodore 64
Softalk, £25.95

A fairly unsophisticated database (maximum 8 fields per record) but with some nice add-ons, including the ability to analyse the stored data using sum, average, standard deviation and frequency charts. About 630 8-line records can be stored on disk. The cassette version does all its manipulation within memory, and can handle about 60 records at a time.

DFM – Vic/64
Dialog £30.00

Works within memory at the moment, which makes it fairly fast, but there's a new version in the pipeline that will use random access disk files, so make sure you know which one you're getting. Basic, but effective. Includes mailing labels module (or £24 without).

Magpie – Commodore 64
Audiogenic, £39.95 (disk), £99.95 (cartridge)

Maximum record size 3050 characters with 52 fields – 26 alpha and 26 numeric – plus calculator screen, menu-driven 'procedure' (program) editing, and help screens on disk. Very good manual, though the help screens almost make it superfluous.

Simply File – Commodore 64/8000 series
Simple Software, £69/£74.75

Written mainly in Basic, so details of display, number of fields etc (set to 30) can easily be redefined. The Central Electricity Generating Board is using this program with 63 fields. Any field can be made a key for search, sort etc. Each field entry is limited to 79 characters. The number of records is limited by disk space and the number of key fields specified – typically about 800 medium-sized records on a 1541 disk, between 1600-2000 on an 8050.

Infodisk – Commodore 64
Beaver, *£74.95*
Variable-length records, maximum record-size 2400 characters with 180 fields, maximum field-size 80 characters, nine screen pages per record, with very sophisticated calculator functions.

Figaro – Commodore 64
Saxon, *£86.25*

Unique numeric database with powerful graphics function, but rather impenetrable manual, though working through the printed examples helps. This is much improved over the

MAKE THE MOST OF YOUR COMPUTER.

INTERFACE PUBLICATIONS

- ☐ **Mastering Machine Code on your Commodore 64** Mark Greenshields £7.95
- ☐ **Mastering the Commodore 64** Mark Greenshields £7.95
- ☐ **Challenging Games for the Commodore 64** William A Roberts £3.95
- ☐ **Putting your Commodore 64 to Work (15 programs, including a complete word processor)** Chris Callender £4.95
- ☐ **Putting your VIC 20 to Work** Tom Lau £4.95
- ☐ **50 Outstanding Programs for the VIC 20** Tim Hartnell £6.95
- ☐ **Delving Deeper into your VIC 20** Philip Campbell. £4.95
- ☐ **Dynamic Games for your VIC 20** Mathew Boek £4.95
- ☐ **Creating Adventure Programs on your Computer** Andrew Nelson £4.95
- ☐ **The Art of Structured Programming** Peter Juliff £8.95
- ☐ **The Easy Way to Program your New Computer** Tim Hartnell £3.95
- ☐ **Getting Acquainted with your VIC 20** Tim Hartnell £6.95
- ☐ **How to Program the Commodore 64** Robert Young £6.95

These books are available from most book and computer stores. In case of difficulty, order directly from us

Interface Publications, Dept. QCU,
9-11 Kensington High Street, London W8 5NP.

Please send me the indicated books I enclose £ _____

Name _____

Address _____

_____

_____

INTERFACE PUBLICATIONS

We're the Experts.

(TRADE ONLY Interface Publications are distributed exclusively in the UK and Eire by W H S Distributors Export trade handled by Interface Publications.)

Business

Spectrum version – but then that was a sixth of the price

Vizastar Commodore 64
Viza Software, £99.95

Describes itself as an information processor, which for once is no mere hype since it combines database, spreadsheet and graphics in a manner that makes the Commodore Plus/4 look rather ill. Number of records in a file limited only by disk size (about 1200 names and addresses on 1541, about 8000 on 8250), up to 64 fields/9000 characters per record, 9 screens. The real plus is it is fast, with an average access time of less than three seconds. Soon to be made available for the 8296 and the Plus/4 machines. By then, perhaps they'll have rewritten the awful manual.

Superbase 64 – Commodore 64
Precision, £100

Maximum record size 1108 characters with 127 fields, maximum field-length 255 characters, four screens per record, help screen editing capability, plus very powerful programming language, with 60 extra commands plus 21 Basic commands. Probably the best value for money database program on any micro. Version also available for the CBM 700 and (shortly) the new Commodore PC IBM-compatible

Master 64 – Commodore 64
Calco, £115

Not so much a database as a really powerful programmer's aid with all the usual AUTO, DELETE and FIND commands, plus more that aren't so usual, screen creation and storage on disk, and the database part, allowing a record-size of 254 bytes, maximum number of fields 254, up to ten files open at the same time, and data packing which compacts field entries by a factor of eight into-five bytes (ASCII) or 12-into-five (numeric floating point)

Superoffice – CBM 8296
Precision, £799.95

A combination of Superbase and the excellent Superscript II word processor, with optional use of Superspell spelling checker instead of Superbase. Actually this version of Superscript is not so powerful as the stand alone module, but the combination is very useful.

Superbase 96

THE COMPLETE INFORMATION STORAGE AND CONTROL SYSTEM. SUPERBASE 96 TRANSFORMS COMMODORE MODEL 8096 OR 8296 INTO A FULL-FEATURED, PROFESSIONAL DATABASE SYSTEM! WITH UP TO 1100 CHARACTERS PER RECORD ON UP TO 6 SCREENS... AND UP TO 128 ITEMS PER RECORD, DEFINABLE AS KEY, TEXT, NUMERIC, CONSTANT, RESULT OR DATE... IN FILES OF UP TO 16M CHARACTERS! WITH SPREADSHEET AND CALCULATOR CAPABILITY, CALENDAR FUNCTIONS, MULTIPLE CRITERIA SORT AND SEARCH, EASY INPUT FROM WORDPROCESSOR/DATA FILES, BOTH MENU-DRIVEN AND PROGRAM OPTIONS, BATCH AND TRANSACTION PROCESSING, FULLY DEFINABLE OUTPUTS... SUPERBASE 96 IS ESSENTIAL IF YOU WANT THE MOST FROM YOUR COMMODORE! SUPPLIED ON 8050/8250 DISK, WITH EXCELLENT TUTORIAL/REFERENCE MANUAL. OUR PRICE ~~£454.75~~ £375.00

Superscript II

SUPERSCRIPT II HAS ALL THE FEATURES YOU EXPECT FROM A PROFESSIONAL WORDPROCESSOR SYSTEM... AND THEN MORE! UNRIVALLED 240-COLUMN TEXT HANDLING, VARIABLE WIDTH SCREEN, FOUR-WAY SCROLLING OVER 2100 LINES, DOCUMENT LINKING FOR UNLIMITED CAPACITY, GLOBAL SEARCH AND REPLACE, FULL MEMORY CALCULATOR, ROW AND COLUMN ARITHMETIC, BACKGROUND PRINTING AND COMPLETE LETTER-QUALITY PRINT CONTROL MAKE SUPERSCRIPT THE ULTIMATE WORDPROCESSOR FOR THE CBM 8096/8296... AND IT SPELLS TOO! SUPPLIED ON 8050/8250 DISK. OUR PRICE ~~£454.75~~ £375.00

Master

THE COMPLETE PROGRAM DEVELOPMENT PACKAGE FOR THE COMMODORE 8096/8296, USED BY BOTH NOVICE AND PROFESSIONAL PROGRAMMERS. MASTER ADDS 85 NEW COMMANDS TO BASIC INCLUDING 72K MEMORY MANAGEMENT, PROGRAMMER'S TOOLKIT, BUSINESS BASIC, KEYED DISK ACCESS, MULTIPLE SCREENS WITH USER-DEFINABLE INPUT ZONES, REPORT GENERATOR, 22-PLACE ARITHMETIC, DISK DATA COMPRESSION, RATE CONTROL, SCREEN PLOT, SCREEN DUMP, AND MORE... EVERYTHING YOU NEED FOR PROGRAMMING TO TOP PROFESSIONAL STANDARDS! WITH COMPREHENSIVE INDEXED USER MANUAL, OUTER REFERENCE CARD AND DEMOS. OUR PRICE ~~£339.75~~ £225.00

*** WANT IT TOMORROW? *** CALL US TODAY! *** ON 01-546-7256

8032 TO 8096 UPGRADE	~~£266.00~~	£237.50	SUPEROFFICE 8096/8296	~~£799.95~~	£650.00
PHOE 8096/8296	~~£114.95~~	£86.25	SUPERSCRIPT 4032/8032	~~£345.00~~	£225.00
VISICALC 8096/8296	~~£228.00~~	£195.50	SUPERSPELL 4032/8032	~~£132.00~~	£135.00
DTL COMPILER	~~£114.95~~	£109.00	SUPERSCRIPT 700	~~£517.00~~	£425.00
MASTER 700		£331.25	SUPERBASE 700	~~£517.00~~	£425.00

PRICES INCLUDE 15% VAT AND ARE CORRECT OR GOING TO PRESS. ORDER BY POST OR PHONE, USING CHEQUE, ACCESS/BARCLAYCARD OR OFFICIAL ORDER. DISPATCH IS BY SAME-DAY 1ST CLASS POST, PRE-PAID ORDERS FREE. PRODUCT DATA AVAILABLE ON REQUEST. REF A79

VISA

Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 01-546-7256

sizzling!
SHATTERING!!
sensational!!!

No, but seriously...

Do you ever find the sharp edge of technology just a bit too sharp for comfort? The Great New Thing is always going to be more wonderful than the one before yet somehow we find ourselves swept on towards Next Year's Model without ever getting to use this one the way we intend.

In 1979 we were way ahead of our time. We had the audacity to suppose that people would buy low-cost computers because they wanted to use them, not just solder them or program them. It took no stroke of genius to guess that they'd rather pay less for programs that do more. It seemed somehow obvious that the programs should be easy to use without being limited. And finally, though expert in other fields, users would need our help or advice sometimes.

Well, in 1984 there are still many who want no more from micros than the challenge of impossible odds. We'd no more decry that than we'd knock the Times crossword or climbing Everest. But we're glad to say that more and more users are discovering Simple Software, and we're proud to say that many of them phone or write just to tell us how pleased they are with the program they bought. We know you'll recognise value. So we'll just drop a few well known names, and invite you to ask for details of these and more.

SIMPLE ADMIN Pupil Records (PET 40/80 col) £50
SIMPLY ASSEMBLE M/c Package (Pet, 64 disk/tape) £22
SIMPLY FILE DBMS (Pet 40/80, 64) from £50
SIMPLY RECOVER Disk Utility (8050, 4040, 3040) £17
SIMPLY WRITE Word Processor
(All, disk/tape) from £35

All prices plus VAT but including post and packing. We offer excellent terms to dealers/distributors UK or abroad.

Simple Software Limited
15 Havelock Rd, Brighton, Sussex BN1 6GL
Brighton [illegible]

LOW PRICE HIGH QUALITY BUSINESS SOFTWARE FOR COMMODORE 64 AND 32K PET

PURCHASE AND SALES CONTROL £80 + VAT
Runs both purchase and sales ledgers with optional calculation of VAT from the gross or net amount, analysis by accounting period, 'due for payment' report, totals for net VAT and gross. Prints invoices on your own stationery laid out according to your own instructions.

NOMINAL LEDGER £60 + VAT
Produces trial balance and up to 20 reports in addition to profit and loss and balance sheet. This program is intended for use on its own, but it can read files set-up by our purchase and sales control.

PAYROLL £99.50 + VAT
Seven rates of overtime, all tax codes, pay slips, full deduction cards, etc.

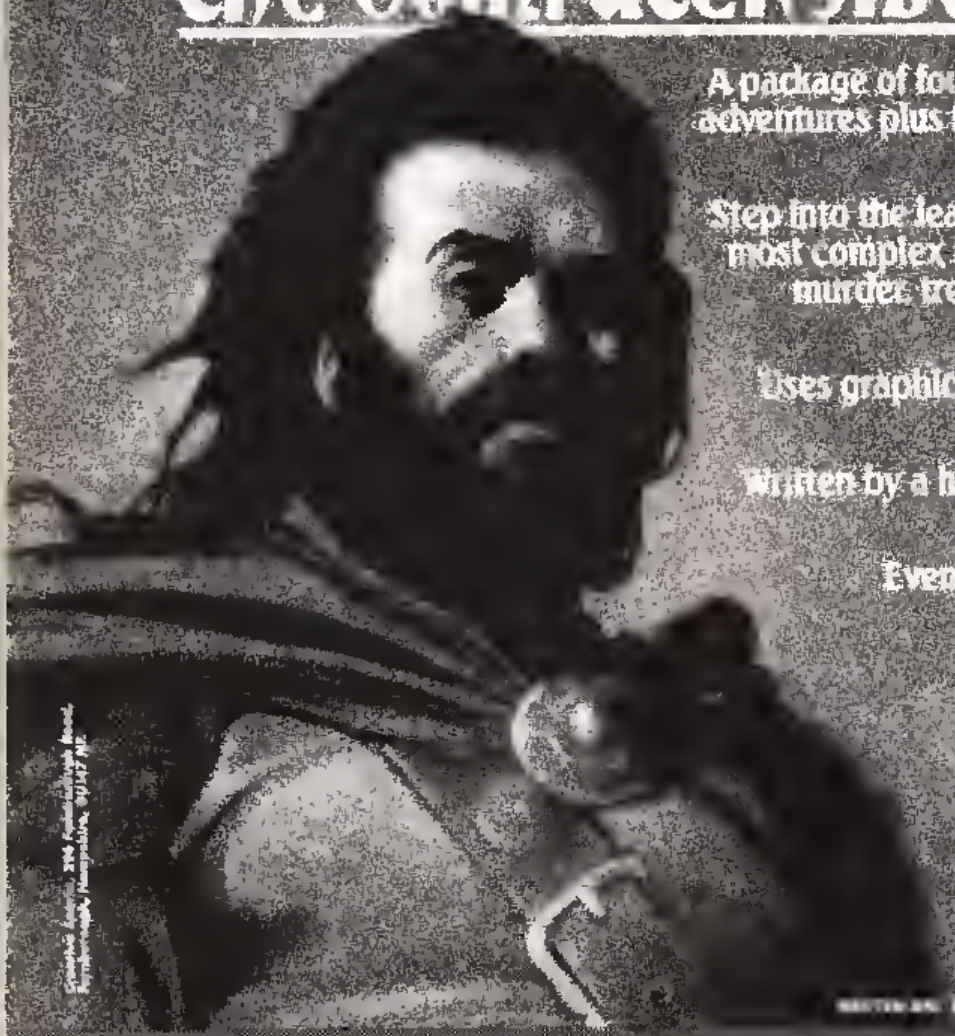
COMPLETE INTEGRATED ACCOUNTING
System for the Commodore Pets; 4082, 8032, 8096 and Commodore 64. from £400.00

Write or phone for details and complete software list.

ELECTRONIC AIDS (TEWKESBURY) LTD

12, Drysdale Close, Wickhamford,
Evesham, Worcestershire, WR11 6RZ
Tel: 0386 831020

MACBETH
THE COMPUTER ADVENTURE



A package of four completely different adventures plus four character analysis programs.

Step into the leading role in one of the most complex and intriguing webs of murder, treachery and witchcraft ever conceived.

Uses graphics as an integral part of the problem solving.

Written by a highly qualified team of experts.

Even the most experienced adventurers will find something new and challenging.

Let your computer stretch your imagination.

FOR COMMODORE 64
£14.95

CREATIVE SPARKS

Available from
All good computer software stockists

Send me (tick as required)

- ☐ My local stockist's address
- ☐ Your full list of games
- ☐ _____ copy/ies of this game

TNEE 293 at £14.95 each	£	p
+ single P&P sum		30p
Total to send	£	p

Method of payment
By cheque or PO (no cash) made payable to **TECS**

☐ By Access or ☐ Barclaycard

Enter card no.

Sign below

Credit card sales UK buyers only.
Response within 21 days.

Creative Sparks,
Department MO,
296 Farnborough Road,
Farnborough, Hampshire, GU14 7NF
Telephone (0252) 518364.

Name

Address

CU1184

FROM

GALA-SOFT

FOR CBM 64

Four programs that will turn computing upside-down

GALA-SPEECH: Talking 64's, Jim can't believe it. Clean voice reproduction. Can be included in your own BASIC & MACHINE CODE programs. Easy to use at £7 95 (tape) £9.95 (disk)

GALA-SPEED: Loads tape as quick as disk. Put the pace into your own programs £7.95 (tape)

GALA-FILE: USER defined fields. 4 levels of search PASSWORD PROTECTED. PRINTS, Records AND Files Hunt. Sort Index etc. 100 fields, 1000 records £7.95 (tape)

SUPER-U: Super friendly utility package includes SUPER BASIC 30+ commands to enhance sprites, sound, Hi-res screens and JON MON assembler/disassembler, and on disk, Auto Loader with manual and help line £10.95 (tape) £16.95 (disk)

All prices include post & packing

from local shops or direct from

GALA-SOFT

118 CHURCH PARADE, CANVEY ISLAND
ESSEX SS8 9RH

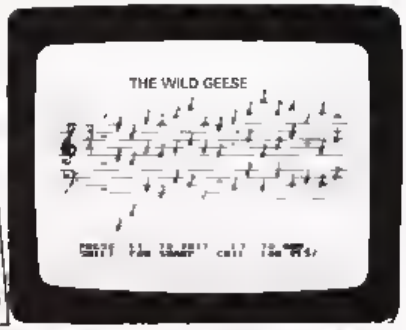
TRADE ENQUIRIES WELCOME 0268 682719

PS GALA-SPEECH:
The price is silly – The program's great!

NEW **THE COMPOSER 64**

One of the most sophisticated music Composer/Synthesiser packages available today utilising every facility of the Commodore 64

Now with this revolutionary package anyone can enjoy music. Even if you know nothing about music, the Composer 64 allows you to create a tune or copy directly from sheet music by writing notes onto the staves. It will help you to understand music & to compose complex pieces - and it presents an exciting & stimulating challenge to those with advanced musical skills.



Pre-Programmed Instruments.
- ORGAN
- PIANO
- VIOLIN
- GUITAR
- WOODWIND
- HARPSICHORD etc.

or make up your own instrument sounds.

FEATURES INCLUDE

● 3 completely independent voices ● Up to 1500 notes possible ● Range of 5 octaves ● Time signatures ● Repeats ● Rhythms ● Memorable tunes ● Full sound quality control ● Triangle wave sawtooth wave, pulse wave white noise & any combination to produce up to 16 different wave forms ● Full editing & merge facility ● Tempo control ● Notes can be copied from one voice to another ● Full colour high resolution screen with changeable note colours ● Full load & save facility on tape or disc ● Full range of notes from demi semi quaver to semi breve

HOW TO ORDER Send cheque/PO to the address opposite. All orders despatched by 1st Class Return Post. Full money-back guarantee if not delighted. Trade enquiries welcome.

THE COMPOSER 64

TAPE	DISC
£8.95	£10.95

Inc. VAT & POST. & PACK.

For the Commodore 64.

Easy to use simple to operate and complete with instructions it is suitable for everyone, regardless of level of musical knowledge - within minutes you can hear the computer play back your favourite tune

Vulcan Computing Dept (CU 1)
32 Guildford Road
Farnham Surrey GU9 9QB
TEL Farnham (0252) 724182

BEYOND

CHALLENGING SOFTWARE

A character you can *really* control, reacting realistically to every twist of the joystick, as he jinks and leaps in and out of his 3D background.

	Quantity	
Please send me **Psi Warrior** (Commodore 64 £9.95)		
From the authors of **Psytron** (Commodore 64 £7.95)		
Order Hotline **0858 34567.** Enquiries **01-837 2899.** Total Price £		

I enclose a Postal Order/Cheque payable to **Beyond,** or charge my credit card

Card Number _____
Access/Visa (Delete as necessary)

Name _____

Address _____

Post Code _____

Signed _____ Please rush me details of the **Beyond** Club! ☐

Beyond Competition House, Farndon Road, Market Harborough, Leicestershire LE19 9NR

Sophisticated Games for Vic 20/CBM 64

Vic/64 Cricket Realistic game of tactical skill and luck. Ball by ball commentary with full scorecard and all the major rules of cricket correctly interpreted. Printer game save features.
Vic Cricket for Vic 20 +16K £5.99
New 64 Cricket with extra features £6.99

League Soccer League title game for 2-24 players with automatic fixtures, action commentary, results check, scorers, league table, cup draw etc. Printer game save features.
League Soccer for Vic 20 +16K £5.99
New 64 League Soccer with many more features still! £6.99

Whodunnit 12 guests have gathered for drinks at Murder Manor, but one of them has more than drinks on his mind. Addictive and thrilling detective game for 1 to 6 players, with genuinely different game each time.
Whodunnit for Vic 20 +8K or any CBM 64 (state which) £4.99

Top of the Pops Easy to learn about the music business. For up to 10 players. Include printer game save features.
Top of the Pops for Vic 20 +8K £4.99
New 64 Top of the Pops — even bigger and better £5.99

Election Night Special Lead your own Party into the next General Election. A game for 1-3 players. Printer game save.
Election Night Special for Vic 20 +8K or any CBM 64 ..... £4.99

Party 4 Four games to match the progress of your party: Masterword, A Day at the Races, Game X (Strip Poker) and Consequences. Harmless fun (nothing offensive) but good fun.
Vic Party 4 for Vic +3K or more £5.99
64 Party 4 ..... £5.99

NEW: Adults Only Fun game for 2-10 broadminded players. Lots of cuddling and kissing, plus many other rewards and forefeits - you never know what you'll end up doing or with whom! Nothing offensive, but you MUST be fairly broadminded.
Adults Only for Vic 20 +16K expansion £5.99
64 Adults Only £5.99

Disc versions available for all games — £2.00 extra.
All prices include P&P (UK only). Games sold subject to conditions of sale which are available on request.
Please write or phone for details of our full range.

Sophisticated Games Dept CU
27 Queens Road, Keynsham, Avon BS18 2NQ
Tel. 02756 3427

COMMODORE 64
16 & Plus/4
PRINTER INTERFACE
with full
COMMODORE GRAPHICS

- ALL Commodore graphics on ANY standard parallel printer
- Fully intelligent self-contained microprocessor controlled interface
- Works with all software and uses no memory
- Easily installed — fit & forget
- No extra power supply needed
- Plugs into serial port leaving cartridge port free.
- Full dot and tabbing facility
- Built-in status-self test report.

order MW350 **£89.95** inc VAT

If you don't need the unique Commodore graphics set then this is your interface. *NO* power supply needed. *NO* printer modifications. *NO* software to load. Leaves cartridge and user port free.

order MW302C **£66.95** inc VAT

EXPANSION UNIT
- 3 slot switched motherboard
- Made from top quality military grade fibreglass circuit board
- All 3 slots fully switchable

only **£18.95** inc VAT

ROM EXPANSION UNIT
- Fully cased
- Accepts 2732 or compatible masked ROM
- Full technical details included

only **£15.95** inc VAT

80 COLUMN SCREEN
E-X-P-A-N-D-E-R
- Takes over video display
- Expands screen to 80 columns
- Takes either 4k 2732 or 8k 2764 EPROMS
- Full technical details included with each cartridge

only **£49.95** inc VAT

V.I.P. SMART TERMINAL
MODEM CONTROL PROGRAM
A key to the world of communications
- Communicate with any host or micro with RS232 capabilities
- 80 column display
- 20 programmable keys
- 16 entry auto dial telephone directory
- Built-in alarm clock and terminal emulator
- Sends and receives in ML or BASIC
- BAUD rate from 50 to 2400

all this for only **£49.95** inc VAT

All prices include VAT. Post and Packing. Dealer enquiries welcome. Ring 01 900 0999 quoting your ACCESS or VISA card now — or send your order to

IMPEX SOFTWARE LTD.
Metro House, Second Way, Wembley, Middlesex HA9 0TY

SERIOUS 64 SOFTWARE

Dr. Watson Basic Course (Honeyfold) t.	£10.50
Dr. Watson Assembly Course (Honeyfold) t.	£12.50
Assembler Development Pack (Commodore) d.	£28.95
Mastercode Assembler (Sunshine) t.	£14.95
MON64 (Handic) r.	£37.95
Programmers Utilities (Commodore) d.	£14.99
Programmers Ref. Guide (Commodore) Book	£ 9.95
LOGO (Commodore) d.	£34.95
CPM (Commodore) r & d.	£49.95
Simons Basic (Commodore) r.	£44.95
Petspeed 64 Basic Compiler (Commodore) d.	£44.95
Ultrasynth 64 (Quicksilva) t.	£14.95
Calc Result Easy (Handic) r.	£46.95
Calc Result Advanced (Handic) r & d.	£95.00
Superbase 64 (Precision) d.	£89.95
Magpie (Audiogenic) d & r.	£89.95
DFM Database & Labels (Dialog) t/d.	£30.00
Transact, Book-keeping (Dialog) t/d.	£30.00
Invostat, Invoice & Statements (Dialog) t/d.	£30.00
Cashbook & VAT Accounts (Gemini) t/d	£59.95/64.95
Final Accounts (Gemini) t/d.	£59/95/64.95

t = Tape d = Disk r = Cartridge
(Send a SAE for a list of our full range)

PLUS – THE PRICE YOU SEE IS ALL YOU PAY

★ FREEPOST (no stamp needed) for ordering ★
★ FREE postage packaging and insurance ★
★ 14 Day MONEY BACK guarantee ★

ACT NOW, by sending cheque or postal order to:

64 PLUS FREEPOST, BLETCHLEY, MILTON KEYNES, MK3 7EF

MILES BETTER SOFTWARE

221, CANNOCK ROAD, CHADSMOOR,
CANNOCK STAFFS WS11 2DD
TEL: (05435) 3577

	tape	disk
US GOLD		
STRIP POKER	8.95	11.90
BEACH HEAD	8.95	11.90
RAID OVER MOSCOW	8.95	11.90
FORBIDDEN FOREST	7.95	11.90
AZTEC CHALLENGE	7.95	11.90
SLINKY	7.95	11.90
CAVERNS OF KHAFKA	7.95	11.90
POOYAN	8.95	11.90
D REILEYS MINE	8.95	11.90
BRUCE LEE	12.95	12.95
THE DALLAS QUEST	N/A	12.95
SPOOKIE	8.95	11.90
PLAK	N/A	12.95
MYSTIC MANSION	8.90	11.90
SOLO FLIGHT	12.95	12.95
SPITFIRE ACE	8.95	11.90
F15 STRIKE EAGLE	12.90	12.95
NAVAL COMMANDER	8.95	11.90
FORT APOCALYPSE	8.95	12.95
ORELIAS	8.95	12.95
SENTINEL	8.95	12.95
ZAXXON	8.95	12.95
BLUE MAX	8.95	12.95

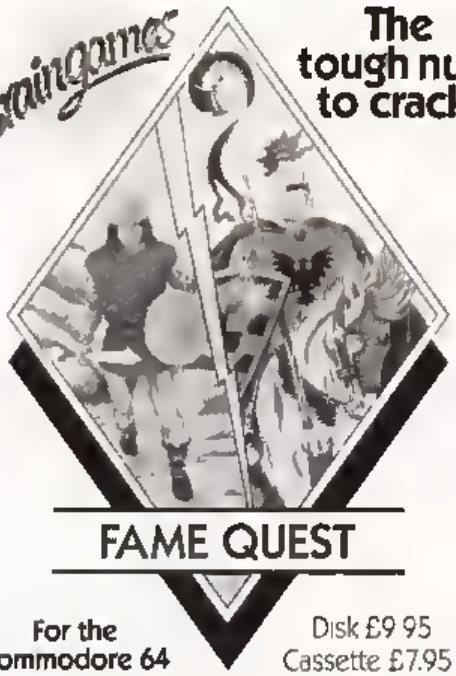
*Accurate for the Atari (phone for size of it)
Please phone for all relevant software hits and software availability

ALL SOFTWARE POST FREE

All software is subject to availability. Phone for Access/Visa sales

Braingames

The tough nuts to crack!



FAME QUEST

For the Commodore 64

Disk £9.95
Cassette £7.95

BRAINGAMES Amplicon Group
Richmond Road Brighton East Sussex BN2 3RL
Tel Brighton (0273) 608331 Telex 877470 AMPCON G
Braingames is a division of Amplicon Micro Systems Limited

Attention all Commodore 64 owners with a 1541 disk drive

MPS TOOLKIT

- ★ **Single-drive 3 Pass Disk Backup** – or individual tracks
- ★ **File Copy** – transfer any number of files at once, up to 232 blocks long
- ★ **Disk Error Locator** – also checks for proper header, DOS ID's & catalog, with printer option
- ★ **Disk Error Maker** – makes 20, 21, 22 & 23 errors, necessary for proper backup of protected disks
- ★ **Disk Drive Monitor** – address the drive's internal ROM & RAM
- ★ **Disk Doctor** – dozens of uses, read and change sectors, recover lost data
- ★ **DOS Changer** – Protect your own disks
- ★ **Disk Log** – displays all files on a disk, including start & end address, beginning track and sector, with printer option
- ★ **Loading Address Relocator** ★**Disk Test**
- ★ **File Recovery** ★**Compactor**
- ★ **Plus many more useful features!**

Beware of imitations! MPS TOOLKIT is the only disk utility for sale in the UK which includes all this at such a low price. Comes complete with instructions is easy to use

ONLY £13.95 including P&P.
Foreign orders, please add £1.00.
Send cheque or P.O. to:
MPS SOFTWARE
36 ALEXANDRA GROVE, LONDON N4 2LF
Telephone: 01-800 3592

Why buy two when one will do?

The INFRASCOPE COMMUNICATOR II is an electronic typewriter AND a computer printer

ALL IN ONE

- ★ RS232 Compatible KSR and Parallel RO interface
- ★ Approved interface for the SCM 1100 Typewriter
- ★ Interface cables available for BBC/B, Commodore 64, Sinclair QL, Spectrum, or virtually any other micro computer with an RS232 or Centronics interface
- ★ Choice of 2 or 8K character buffer

ALL THIS FOR ONLY £458
Incl. VAT & Delivery
(Interface Cable Extra)
VISA/ACCESS accepted

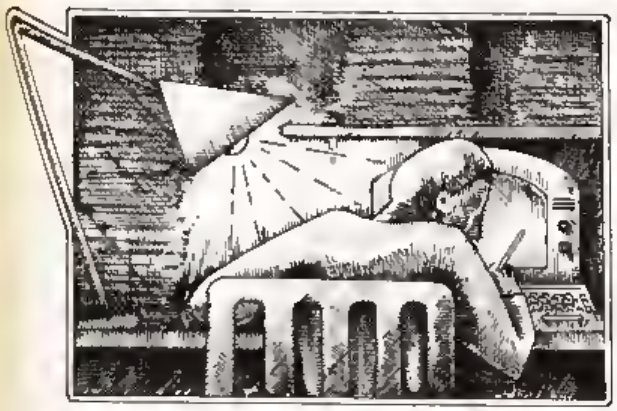
The new **KSR COMMUNICATOR II** is now available for immediate despatch. Using the popular Smith Corona EC 1100 typewriter we have created a high quality computer printer by fitting our new INFRASCOPE interface.

But don't take our word for it, write or phone for our free comprehensive data sheet

INFRASCOPE LIMITED
Longbeck Road, Marske, REDCAR, Cleveland TS11 6HQ.
Telephone 0642 470121

TOMMY'S TIPS

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.



Dear Tommy, I have owned a Vic-20 for nearly a year and have been confused about this line:-

PRINT (X AND 7)

I know that it returns a number when X is a variable, but that's all. Please explain how it operates as none of my friends know.

The Boolean operators 'AND' and 'OR' can be rather confusing unless you understand the basic principles (known as Boolean algebra!) The rules can be summarised in what are known as Truth Tables

A	B	A+B
0	0	0
1	0	0
0	1	0
1	1	1

Figure 1

A	B	A+B
0	0	0
1	0	1
0	1	1
1	1	1

Figure 2

In other words, the result of A 'AND' B is only 1 if both A and B are themselves 1 (fig. 1). With an 'OR' operator, A 'OR' B equals 1 if either A or B are 1 (fig 2)

When you see an expression (X AND 7), you have to consider the binary values which make up the numbers. Thus if X = 12 we get

12 = 00001100
7 = 00000111

Only one of the 'bits' has a 1 in both numbers so the result of (12 and 7) = 00000100 which is 4

Dear Tommy, I have a Vic-20 which I purchased as a starter kit last October and it has worked perfectly until recently.

If I write a program and SAVE it, switch off, return later and LOAD, it works perfectly. But trying to load the tapes that came with the starter set, or any other programs I SAVEd when first learning, nothing happens. I have attempted these on a neighbour's equipment and nothing happens. Although a program SAVEd today will LOAD on his and one from his will LOAD on mine. We both have identical equipment. I have tried original tapes and my earlier tapes on my son's Vic-20, identical to ours, and they all work perfectly. But my present-day SAVEd tapes do not LOAD on my son's Vic.

Any suggestions would be appreciated.

Your problem sounds like one of tape speed. If you and your neighbour have had your equipment about the same length of time it is possible that both recorders require adjusting or servicing. Tapes recorded at the current speed will reload happily, but previous tapes recorded at the correct speed will not. Likewise your new tapes will not load on your son's machine because his recorder will be running at a different speed to yours. The fault could be either mechanical wear and tear or a faulty component in the speed control circuit. Either way I suggest you need to get your recorders serviced.

Dear Tommy, I am at my wit's end. I just don't know what to do. So could you please advise me and don't brush this letter aside and throw it away.

I am just finishing my 'O' levels and have become interested in computers. Finding the right computer was then a problem: a Spectrum, an Electron or a 64?

Finally I went for the 64, sent off to my investment account for the money, then I read in the June Commodore User that the new Plus 4 is due for release in September.

Should I wait and pay the extra £50 or so, will it be worth my while? Or will I find it more of a business computer and no software for the home (either games/educational/home accounts – for the old man!)?

Please, please, please could you advise me as a non-biased view. I would very much appreciate it.

"A bird in the hand is worth two in the bush" may be an old proverb, but never has it been more appropriate than in the world of computers. When the 64 was first launched there were many delays. Limited supplies and not a great deal of software, now the 64 is much cheaper, in plentiful supply with a vast range of software for almost any type of application. There is no reason to think that the new Plus/4 is going to be any different in its birth pangs.

There will always be a better machine over the horizon, the Plus/4 has a better Basic, built-in software packages, etc, etc, but apart from the pre-release models at the Commodore Show, I haven't seen one either fully reviewed or available to buy. My personal opinion is to buy what you can afford that is available *now*. You can always upgrade to the Plus/4 next year or later when it has been de-bugged, up-rated and all its promised peripherals are actually available.

By the way, you'll find a preview of the Plus/4 in the last issue, which majors on the machine's Basic and graphics facilities. That may give you a little more to base your decision on. This issue, of course, we've looked at its in-built software.

Dear Tommy, Can you tell me why when I plug in the Commodore International Football cartridge my tape unit starts, and why unless the 1541 is physically disconnected there is no sound?

Additionally I would like to join the growing band of unhappy Commodore users. I recently bought a 1520 printer/plotter to find it is configured as device number 6, most software assumes device number 4. Questioning Commodore they said it was to allow two printers to be configured; but it is not possible to daisy chain from the serial port.

There appears to be a bug in the International Soccer cartridge. Bit 5 of address 0001 controls the motor; address 0001 also controls the switching of the Basic ROM and the Kernal ROM and when these are switched out I imagine the programmer has forgotten to leave bit 5 set to 1 which is the motor off state. Not a lot you can do I'm afraid other than unplug the tape.

I am surprised however that you lose sound with the 1541 plugged in. I have used the cartridge myself with a 1541 attached without any problem on the sound at all. I suggest you get your dealer to have a look at your 64 or try a new cartridge.

Setting up the 1520 as device 6 has caused a lot of disappointment amongst Users; however, by making you own splitter box it is perfectly possible to run both a standard (device 4) printer and the 1520 off the serial bus. You can adjust the device number of the 1520 by cutting a track on the PCB, but I do not have the full details and it would invalidate your warranty to do it.

Tommy's Tips

Dear Tommy, Please could you explain the term 'pass' as in 'two pass assembler'. I have assumed it meant the code was in two forms before it was actually input into memory.

The term 'pass' refers to the number of times the assembler runs through the program to produce the final code. The reason it needs to go through the code more than once is that not all the information it requires is available to it the first time through. For example, it may detect jumps to code/labels it has not yet reached; these 'jump addresses' cannot therefore be calculated so it normally stores the label etc in a 'table'.

When it finds the subsequent address it stores that in the table as well. The second time through the code it can insert the correct jump addresses from the table. Some assemblers/compilers can require up to four passes, doing different processing each time through. It is possible to get single pass assemblers but they tend to be more complicated and more expensive.

Dear Tommy, I would like to get an electronic typewriter which can double as a printer for my Commodore 64. Could you please tell me which machine(s) is best for this purpose? Thanking you in anticipation of your help.

It is always slightly difficult recommending equipment without knowing exactly what it is going to be used for. After taking advice from someone who sells both computers and electric typewriters I would suggest the **Smith Corona EC1100** together with the appropriate Centronics parallel interface as a general purpose machine. I have seen and used this combination and it is the best typewriter/printer system I have come across at the price. Unfortunately, like the majority of these computer/typewriter combinations, the interface is not 100% robust and will occasionally crash if you try to be too clever with it.

For normal WP and listings however it seems perfectly adequate and as an electronic typewriter it is superb. It costs around £450 including the interface; your dealer may well be willing to fit the interface into the typewriter for you if you ask, since it does involve cutting the case. One point to note is that you will still need a software or hardware 'CBM to Centronics' interface and a suitable cable in order to connect the printer to the CBM 64. This will add between £20 and £60 to the total price.

Dear Tommy, As I have not had a computer for very long, I hope you can inform me of a program that will change the screen from 22 to 40 characters on my Vic-20.

I have a cassette whose programs require a 40 character screen or more. I find your magazine very good and interesting.

I am not aware of any way of changing the Vic's screen using software. What you need is a 40-column card which does the conversion externally. The main problems are the cost, plus the fact that you need a monitor to use with most cards. There is also the problem that commercial programs may not be able to use the 40-column screen unless they only use PRINT statements.

Since the screen is normally located at a different address when using the card, existing POKEs to the screen will no longer work and must be altered. Zero Electronics do a suitable 40/80 column card for the Vic-20 priced at £64, plus £70 for a monitor.

Dear Tommy, In Tommy's Tips of the May 1984 issue you referred to setting Switch 4 ON in the 8K RAM cartridge to fit this into the ROM area starting at 40960 (A000).

Will you please demonstrate by way of a short program how we insert DATA into this area – and more importantly – how the Basic program knows where it is?

Thanks for the best magazine around on Commodore.

As I said in the original answer there is no easy way to access this

POWERFUL UTILITIES

FASTBACK
Convert your slow loading software to high speed load with Fastback. The most sophisticated program of its type allows you to produce 'turbo' speed copies of most single and **multi part** software. Very easy to use, no programming knowledge needed. Example: Load 'The Hobbit' in 150 seconds.
Supplied on tape with instructions
ONLY £9·95

DISCO
We guarantee this is the best tape to disc utility on the market. Transfers most (normal speed) software to disc. Very easy to use, no program rewriting needed. Programs auto load and run once transferred. Disco is also handy for making your own software auto run on disc.
Supplied on tape with instructions
ONLY £9·95

BIGMOUTH
This is an amazing new speech synthesis program. Uses '**SPEAK**' as a **BASIC** command. Can be incorporated in your **BASIC** programs. Words are entered in phonetic English ie. Spelt as it sounds. Therefore vocabulary is unlimited. Great fun.
Supplied on tape with instructions
ONLY £7·95

ROCKET
Fed up with waiting while programs **LOAD** and **SAVE**? Rocket solves this by speeding up operations by about 6 times while still allowing for normal speed **LOAD** and **SAVE**. Does not affect the speed of **BASIC** as no wedge is used. Programs can also be saved with high speed system for independant reloading. A **MUST** for serious programmers who can't afford a disc drive. Takes just 45 secs to **LOAD**.
Supplied on tape with instructions
ONLY £7·95

DISC DISECTOR
AT LAST a really powerful disc copier and utility program incorporates the following. **High speed disc copier** takes just four minutes to read and write an entire disc. **Selective disc copier** choose which programs you want to copy from the directory. Allows output to tape. **Error Copy** automatically reads and writes track/selector errors. Now you can back up those expensive business programs which are considered uncopyable. **Quickdisc**, more than halves disc loading times. **VERY** useful. Also includes **MENU MAKER**, **FORMATTER**, **INDEX**, **RETITLE**, **RENAME**, **SCRATCHER** and **TIDY**. If you have a 1541 you must have Disc Disector. Supplied on disc with instructions
ONLY £29.99

TAPER
A powerful utility. Works with almost all normal speed software.
Supplied on tape with instructions
ONLY £5·95

3M SCOTCH DISCS S.S.D.D. **£16·00**
LIFETIME GUARANTEE
BOX OF TEN

DATA RECORDER
From the same factory as the C2N–the Super Saver 20/64 Data Recorder (no interface required)
£29·95

...KS FOR BBC, ELECTRON, ORIC, DRAGON.
...Draft.

MICRO CENTRE
BRIDGE STREET, EVESHAM, WORCESTERSHIRE
Tel: 0386 49641

MICRO CENTRE
1756 PERSHORE ROAD, COTTERIDGE, BIRMINGHAM.
Tel: 021-458 4564

ARROW MICRO SERVICES
– Commodore 64 –

ARROW TURBO-SAVER
Fed up with waiting for those programs to load? Well you need Turbo-Saver, easy to use and faster than the 1541 disk drive, programs reload independent of Turbo-Saver £7.00

ARROW DISKOPY
This selective disk copier will copy both PRG and SEQ files faster than 1541 back-up and you don't need to copy all the disk, very user friendly and easy to use £7.00

ARROW TRANSFER
Transfer your favourite games to disk both multi part and Auto Runs, works with most software . £7.00

ARROW DISK-DOCTOR
Now you can recover scratched files easily, edit any byte on any block in Hex or Alpha, alter programs, edit the directory, format disks £8.00

ARROW MICRO SERVICES

20 Portmeadow Walk
London SE2

Only by conquering **Stonehenge** can you free the world of the **evil curses** and **eternal darkness**. Join us on this **marvellous arcade adventure** and **challenge** your wits against the evil forces of the **Necromancer** with his spectacular **trickery** and **deception**.

CBM 64

- Marvellously detailed graphics and animation.
- Many objects to collect and exchange.
- Joy stick control. ● 17 screens to master
- Atmospheric music and sound effects
- 'Flashload' rapid load system

FREE – CBM 64 Dust-cover when you order direct from DACC the simulation specialists

747 Flight Simulator
(over 15,000 sold already)

Picture shows BBC'B version (2 colour)

Look at these features on our CBM-64 version.

- ★ full colour high-resolution graphics
- ★ fast – 100% machine code
- ★ real engine sound and audible alarms
- ★ take-off, land and fly between seven airports
- ★ instrument landing system (ILS)
- ★ precise, perspective view through cockpit window
- ★ joystick optional
- ★ full, four-engine instrumentation
- ★ 21 real dials plus many other indicators

Available direct from DACC Ltd.

Cassette £9.95 **Disk £11.95**

★★ Commodore 64 Accessories ★★

- ★★ High quality PVC dust cover ..... each £2.95
- ★★ Blank C20 cassettes ..... five for £2.75
- ★★ Disks s/s s/d ..... each £1.95
- ★★ Disk storage box ..... each £1.95
- ★★ Flow-chart template ..... each £1.00

all prices include VAT, P&P
Despatch within 48 hours by first class post
★★ Special Offer – order 747 F/S and receive dust-cover or any other accessory absolutely free ★★

order from DACC Ltd (Dept CUS 2)
23 Waverley Road, Hindley, Wigan, Lancs WN2 3BH

DON'T JUST PLAY GAMES!

EDUCATIONAL SOFTWARE
for the
VIC-20 UNEXPANDED

Physics	O level/CSE Revision Aid
Biology	O Level/CSE Revision Aid
Maths	CSE Revision
Computer Studies	O Level CSE Revision Aid
Science	Revision 12/14 Years
Maths	Revision 12/14 Years
Mathematics	Revision 8/11 Years
Arithmetic	Revision 7/10 Years
Reasoning	11+ Revision
Knowledge	Quiz 9/99 Years

Exceptional value at just £4.95 each post free

Immediate delivery by first class post

NO EXPANSION RAM NEEDED

Cheques PO to:
Micro-De-Bug Consultancy
Dept CU, 60 Sir John's Road
Selly Park, Birmingham, B29 7ER
Tel: 021 472 7610

DEALER ENQUIRIES WELCOME

LOTHLORIEN

56a Park Lane Poynton Cheshire SK12 1ER

Another great game from the keyboard of Steve Hughes 16 increasingly difficult levels face Charlie as he seeks to escape from the time warp in the sealed Warehouse 'Computer and Video Games' comment "If you're after an easy game this is not for you It's very tricky but if you like a challenge this is well worth the money" Sound effects graphics, playability and 'getting started' all get high marks Another quote "Which Micro' Game of the Month" It's games like CHOC A BLOCK CHARLIE which sort the veteran joystick articulates from the dilletanties Still, perhaps it's worth another go or two or three

CHOC A BLOC CHARLIE – Commodore 64, £6 95
With Pavloda Ultra Fast Load

WIN £100 AND SCARPER!

NEWS FLASH
SPECIAL OPERATIONS FOR COMMOOORE 64
ENTER OUR COMPETITION
WIN A FREE HOLIOAY

A new graphic game from Steve Hughes, featuring smooth sprite graphics superior sound, over 10 minutes of scrolling and changing landscape Avoiding numerous attacks from the loathsome CRUDILITES as you rescue 10 Scientists from the planet Tubark and SCARPER WIN £100 for being the first person to telephone LOTHLORIEN 0625 876642 and prove you have safely rescued all 10 Scientists on the homeward bound spaceship If the prize has not been claimed by March 31 1985, it will be awarded to the first person to prove having achieved the highest number of Scientists in the rocket DON T DELAY, BUY TODAY, and phone your high-score message

SCARPER – Commodore 64, £6 95
(Fast load cassette)

SIMPLY FILL IN COUPON AND POST TODAY

ORDER NOW

SPECIAL OPERATIONS	£6 95 ☐
CHOC A BLOC CHARLIE	£6 95 ☐
JOHNNY REB	£6 95 ☐
SCARPER!	£6 95 ☐
MICROMOUSE GOES DEBUGGING	£6 95 ☐

Please send me your free colour catalogue ☐

I enclose a cheque P O made payable to M C Lothlorien
Please debit my Access A C No

Signed_____ Name_____

Address_____

_____ Post Code_____ REFICU A1

LOTHLORIEN *more action for your money!*

Send to M C Lothlorien 56a Park Lane Poynton Cheshire SK12 1RE
Tel Poynton (0625) 876642

Tommy's Tips

area directly from Basic You have to use the standard PEEK and POKE commands, but you can use a DEF FN command to set up the area as if it were a large array, eg:

```
100 DEF FNW(EL) =
      POKE40960 + EL,X
        (Function Write)
110 DEF FNR(EL) =
      PEEK40960 + EL)
        (Function Read)
.
.
.
2050 FOR EL + 1 TO 50
2010 READ X: FNW (EL)
2020 NEXT EL
```

This would store DATA values (numeric only) in the first 80 bytes of the 8K ROM area Equally, the values could be input from a tape or disk file To read the values back use **X = FNR(EL).**

Dear Tommy, I have recently bought the Triplar 64 interface to interface my 64/1541 with a Shinwa CP80 printer – a cartridge that plugs into the expansion slot, with one serial and one ribbon cable.

My problem is that I bought the interface by post, and it came with no instructions, not even a box! The dealer isn't too keen to answer my letters, and I can't seem to get the system to work. Can you provide any advice on.

a How to connect up to the 1541/C64

b What responses to make to the 'printer' screen prompts when initialising Easy Script

Hope you can help.

The connection should be straightforward enough, the cartridge goes into the expansion port, the serial cable plugs into the second serial socket on the 1541 (the disk drive is connected to the 64 in the normal way) and the ribbon cable then plugs into the Centronics socket on the printer

As for Easy Script, try telling it that you have a standard Commodore printer attached you should at least get some output although you might not be able to use all the fancy fonts etc. You can try the printer directly by the following test program, which must be typed exactly as shown (ie in Upper/lower case)

```
100 for sr = 0 to 6
110 open 4,4,sr
120 print #4, sr; " TESTING testing"
130 close 4: next
140 end
```

This will test all the secondary addresses and tell you which ones give lower case, which ones suppress Line Feed etc If you do not get any output from this at all then you have a problem and it's going to mean a fight with the supplier to get your money back.

Dear Tommy, Perhaps you have an answer to my two questions.

I have a Commodore 64, cassette deck and a 1520 printer/plotter. Is there any way I can print directly from the computer without having to constantly open and close a file?

At present in order to transfer what's written on the screen to the printer I must open a file, type in CMD 3 and on typing LIST, the printer will print. Also how can I transfer my printer from 40 digits to 80 digits wide?

Hope you can solve my two problems.

You are getting confused between 'files', which store data, and 'streams' which provide a data channel. When you **OPEN3,6** you are telling the computer to open data stream number 3, connected to device 6 There is no other way of telling the computer which device you are addressing. When you type **CMD3**, you are saying "Instead of printing to device 0 (the screen) send all output to whatever I have connected to stream 3"

These 'streams' enable a number of devices to be connected at the same time, yet allows the User to select only the particular one he requires.

To get your 1520 to print in 80 column mode, type the following:

OPEN 3,6,3: PRINT #3,0

Full details are shown on page 30 of the 1520 User's Manual.

Dear Tommy, Could you please tell me if it is possible to access and use the 3K of memory between locations 1024 and 4096, without buying a 3K RAM pack?

I'm afraid that it is not possible to use something that isn't there The problem is that the 3K expansion area does not actually exist until you plug in a 3K RAM cartridge, there is just a 'hole' in the memory map from 1024 to 4095 All the extra RAM of 8K or more goes in a different location in the memory map (8192 onwards) and cannot be altered. I regret that without a 3K RAM pack your game is doomed to gather dust.

Can you afford to write for anyone else?

ocean

Leaders in Computer Games require programs and programmers

1. Original game programs for the Spectrum or Commodore 64 are urgently required:- Arcade, Strategy or Adventure We pay top royalties or tailor a contract to suit your needs – WorldWide sales ensure the best possible deal.

2. Programmers to work in 280 or 6502 assembly language for contract work or translation coding – best rewards.

ocean

Write or phone in confidence to. Software Development, Ocean House, 6 Central Street, Manchester M2 5NS. 061-832 6633

Game for a song...

VIRGIN GAMES at £2.99

The **LAUGHING SHARK** told us that it won't be long till **CHRISTMAS** and it was time we did something about it so, until the end of **NOVEMBER**, we will be selling most of our **BEST GAMES** at the **SPECIALLY REDUCED** price of **£2.99** instead of the usual prices of **£5.95** and **£7.95** – that's a **SAVING** of between nearly **£3.00** and **£5.00** per game!

These titles **ONLY £2.99** each –

	NORMAL PRICE	SAVING
CBM 64		
Falcon Patrol	£6.95	**£3.96**
Hideous Bill	£7.95	**£4.96**
Ambush	£7.95	**£4.96**
VIC 20		
Mission Mercury	£7.95	**£4.96**
Envahi	£5.95	**£2.96**
Creepers	£5.95	**£2.96**

Falcon Patrol – A fast action and compelling game which I highly recommend ... Micro News. **Hideous Bill and the Gi-Ants** – It is very addictive and I like Falcon Patrol the use of sound is superb. Home Computing Weekly. **Mission Mercury** – This is one of the few home versions that is actually an improvement on the arcade version with better graphics and improved action ... Commodore Horizons. **Envahi** – This game is exciting and demanding and an absolute must for any serious computer games player. Personal Computing Today. **Creepers** – It really does become compulsive. Real Computing

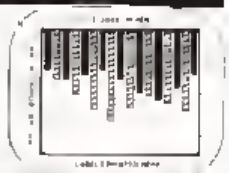
If your local **RETAILER** does not stock these **GAMES** at the **SPECIAL LOW** prices, simply send a cheque or PO for **£2.99** for **EACH GAME** you want plus 50p postage and packing (however many **GAMES** you **ORDER**) to the **'GRAB IT WHILE YOU CAN'** Department, Virgin Games 2-4 Vernon Yard Portobello Road, London W11 2DX

Saxon Computing

FIGARO 64

for

commodore 64



Much more than a business graphics package or spreadsheet, FIGARO 64 is a powerful numeric database system for maintaining files of numbers and their descriptive data, plus hi-res graphics and slide show option. Easy-to-use menus provide built in statistics, calculating routines and even seasonal forecasting, with full data security.

Features include
Create New File, Open File, Close File, Disk Directory, New Series, Copy Data, Shift Data Left, Shift Data Right, Add, Subtract, Multiply, Divide, Cumulate, Display Data, Print Data, Enter Data, Amend Data, Mean, Harmonic Mean, Maximum, Minimum, Range, Moving Totals, Moving Averages, Standard Deviation, Correlation Coefficient, Growth Rates, Indices, Percentages, Seasonal Forecasting, Bar Charts, Line Charts, Dual Line Charts, Mixed Bar & Line Charts, Cluster Bar Charts, Pie Charts (all with Text and Hi-Res Graphics mixed on the screen), Screen Dump of Graphs or Save for Slide Show Option.

Ideal for Sales Marketing Finance, Education, Local Authorities, Biology, Meteorology and many other applications.

£86.25 inc VAT and P&P

Supplied on disk, with a comprehensive manual complete with worked examples

Works with both Commodore and Centronics printers.
Access & Barclaycard welcome
Mail orders despatched with 24 hours

Mail Orders, Access and Barclaycard to:
Saxon Computing,
3 St. Catherines Drive, Lecomfield,
Beverley, North Humberside HU17 7NT
Tel 0401 50697

Trade/Export Enquiries Welcome

SENTINEL HOME SECURITY & CONTROL INTERFACE FOR COMMODORE 64 & VIC 20 COMPUTERS

SENTINEL INTERFACE UNIT

- 8 output channels, LED status from computer by programming
- 8 input channels, opto-isolated from surrounds
- LED status indicators
- Internally fused
- Attaches to user port via edge connector and cable supplied
- Cheetah International case to complement Commodore hardware

SENTINEL CONTROL PROGRAM

- 8k VIC, 32k CBM 64
- Program supplied on tape or disk
- Menu selections for easy operation
- Function key driven
- User parameters saved to sequential data file
- Event logging to printer or disk

Interface Unit & Control Program
£69 p&p £2.50

The SENTINEL interface hardware and software is designed for general purpose computer control applications in the home and office. Ready to use as the basis of a domestic burglar alarm system.
By linking the SENTINEL burglar alarm system you are taking the first step towards COMPUTERISED HOME AUTOMATION at an extremely low cost. You did buy that computer for more than just playing games, didn't you? Now is the time to start learning but how far does it take you into the home.

BURGLAR ALARM SYSTEM

- SENTINEL interface unit
- SENTINEL Control Program (tape or disk)
- 8000 external alarm unit
- Tamperproof, weather proof enclosure for external bell
- Internal buzzer
- 10 magnetic contact switches
- Reed switch mount by Biral
- 8 sensor mat
- 8 ionisation smoke
- 50m cabling and clips

Complete DIY kit £99 p&p £5

MICRO-SECURITY
PO Box 18 Havant Hants PO9 3LS

Write away

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think – about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course; but anything that might be of specific relevance or general interest will make it to these pages.

Case for lower-case

Home-control ports

Designs on Simon

Disk tips

Arthurst blunder

Prising the 1541

Y-E-S Vic 20 & 64

SALES & SERVICE

COMPUTERS

SAY YES FOR COMMODORE HARDWARE, SOFTWARE & PERIPHERALS

YORKSHIRE ELECTRONICS SERVICES LIMITED

Caxton House,
17, Fountain Street,
Morley, West Yorkshire
Tel: 0532-522181

Commodore 64 + Vic-20 Club

All original software – business and games. New releases for CBM64 every two weeks.
Send your name and address to go onto our mailing list.

M.J. Seaward
St Olafs Road, Hill Head, Stratton, nr Bude, Cornwall.
Telephone: Bude 4179.

TRIDENT ENTERPRISES

UPGRADES

3541 & 1540 £40.00 Incl Parts
2 3 4000 Computers £70.00 Incl Parts
2 3 4000 Floppies £97.50 Incl Parts

COMMODORE REPAIRS

Vic 20 £15.50 Parts
C64's £15.00 Parts
1541 & 3540 Floppies £20.00 Parts
8000 Series Computers £40.00 Parts
8000 Series Floppies £40.00 Parts

FIELD SERVICE

40 Miles Radius of Slough on Business Systems. Telephone for further details

We also repair BBC, Spectrum

Send your machine with a brief description of faults to
Trident Enterprises Ltd, 37 Linden House, Common Road, Langley, Slough, Berks SL3 8TT (0753 40785)
(The above prices are Exclusive of VAT & P&P)

COMMODORE 64 – UTILITIES

No 1, Carbon copy – America's best selling disk utility is now available. Full disk track & sector error search, error maker produces 20 21-23-29 read errors, will enable users to make personal back-up of their own disks. Also includes disk modify, change heading & ID's, speedcopy, find start & ending addresses ML monitor & much more. Available on disk at an introductory price of £17.95

N2 2, Disco – Tape to disk utility, transfer your cassette programs to disk, all programs auto-run once transferred. This is the best you can buy. Special introductory price £8.95. Price includes P&P. Send cheque, P.O or phone your access or visa number through to 0942 495359

Send by first class post
Galaxy Software
15 Diconson Terrace, Wigan WN1 2AH, Gtr Manchester

Wordprocessor for the CBM64 for ONLY £395.00

ARE YOU WORRIED about buying a word processor system for your CBM64, but frightened you'll need a degree in electronics to get it working? Well here's a system that is not only simple, but actually works. A professional word processor including a Daisy-wheel Silver Reed EXP-400 printer, Wordcraft 40 software on cartridge and an interface cable (worth £20.00), no need for a disk drive. We will also send you a Centronics interface tape for general printing and listing. All at the unbeatable price of only £395.00.

Just plug the computer into the printer, no interface required, and you are ready to produce those professional letters and reports as soon as you switch on.

If you already have Easyscript free with your Disk drive, then this printer with our free cable is fully compatible, for just £315.00. Please add £8.00 P&P (delivered by Securicor).

If you would like further details please send a large SAE.

Numeric Keypad
For CBM64 and Vic-20

Essential for the serious and business user. No software required, simply fits in parallel with keyboard. Always ready to use. High quality, gold contact, full travel key switches for long reliable life. Includes return key and 1 metre of cable.
Now available at the introductory price of £28.95 (Inc VAT) & £1.00 P&P

Please send cheques PO to:
Commercial Products, 11 Hylands Close, Furnace Green, Crawley, Sussex RH10 6RX

COMMODORE 64 DATABASE DATAFILE

Powerful options include: Print all/selective records, delete, amend, save, load, copy, alphanumeric sort, user defined fields, memory check, total numeric fields, multifield interrelational, global and between limits searches etc. Fully Menu driven with comprehensive easy to use instructions. Disk and cassette fully compiled. (Can be used with 1515, 1525, 1526 GP 100VC, MPS 801 printers and 1520 printer/plotter if required and most centronics with suitable hardware interface.)

Outstanding value:- cassette £7.45, disk £10.25 fast delivery by first class mail. Send cheque/postal order to:-

A+C Software, 51 Ashtree Road, Tividale, W Midlands B69 2HD

PRINTER BARGAINS

INTERFACE/CABLE INC. VAT & CARRIAGE INC.

FOR VIC-20 AND CBM64

Seikosha	GP100VC	30 cps Graphics	145
Seikosha	GP500A	50 cps Graphics	300
Seikosha	GP250X	50 cps Graphics	245
Seikosha	GP550A	50 cps Correspondance	255
Seikosha	GP700A	7 Colour 50 cps	360
Shinwa	CP80	80 cps Friction/Tract	235
MicroP	CCP40	4 Colour 40 80 column	180
Canon	PW1080A	160 cps Draft 27 cps - NLQ	340
Epson	RX80T	100 cps Traction	225
Epson	RX80FT	100 cps Friction/Traction	300
Daisy Step	2000	18 cps Daisywheel 96 char line	280
Interface cable		Tripplin 30 software not req	45

Monitors Philips V7001 – £65 Fidelity CM14 – £219

Payments to:-

Silica Computer Systems
Bryn Cottage, Peniel, Carmarthen, Dyfed
Tel: 0267 231246 for Full Price List & Specs

PRINTER BARGAINS

INTERFACE/CABLE INC. VAT & CARRIAGE INC.

FOR VIC-20 AND CBM64

Seikosha	GP100VC	30 cps Graphics	145
Seikosha	GP500A	50 cps Graphics	299
Seikosha	GP250X	50 cps Graphics	245
Seikosha	GP550A	50 cps Correspondance	255
Seikosha	GP700A	7 Colour 50 cps	360
Shinwa	CP80	80 cps Friction/Tract	235
Mannesmann Tally	MT80	80 cps Friction/Tract	255
Canon	PW1080A	160 cps Draft 27 cps NLQ	340
Ehingn	1550	165 cps + fine script mode	325
Epson	RX80FT	100 cps Friction/Traction	318
Daisy Step	2000	18 cps Daisywheel 96 char line	285
Interfaceable		Tripplin 30 software not req	45

Monitors Philips V7001 – £65 Fidelity CM14 – £219

Payments to:-

Bryn Cottage, Peniel, Carmarthen, Dyfed
Tel. 0267 231246 for Full Price List & Specs

See what happens when you play.

LEWDO!

The naughty new game for up to six adults.

FOR THE COMMODORE 64 – NOW £5.95
Twilight Software, PO Box 64, LONDON E11 4SH

Unsuitable for under-18s. Joysticks not needed.

CLASS

CBM64, C2N cassette 1525 printer 1541 disk drive Easyscript, Introduction to Basic, Stock Control various games all manuals and boxes as new disks and paper £575 ono 0723-360926/0723 352379

CBM64 software to exchange including many utilities and American titles, over 200 disk only Most interested in American utilities, and modem software Phone (0602) 258482 or write including your list of programs to M Pepper 11 Thornhill Close Bramcote Hills, Bramcote Nottingham NG9 3FS

Hi from Down Under in New Zealand! I want penpals from Canada and Britain with Commodore Vic-20s Write Russell Gander, 108 Brierley Place New Plymouth New Zealand

I have a Vic-20 with over 130 programs You can buy or change them some programs are Gridrunner Amok, Dragon Slalom, Vicfriend Rat Race Chess, Slot Machine Poker Roulette, Avenger PacMan, etc Silvio Polacco, 53 Malverio Street 00135 Rome Italy

French Vic fan wants teenage penfriend (age 14) who's keen on computers to come to my family for Christmas holidays If interested write to Jean Christophe Arnulfo, 50 rue de la sale 68000 Colmar, France

C16, CBM64 and Vic users! Bored with your software? If so why not exchange it for those programs that you've always wanted? membership is free! You can have free exchanges! There is a listing service available and lots of bargains Send an sae for details to Mavac Enterprises 101a Underdale Road, Shrewsbury

Vic-20, recorder, plus 3K, 13 cartridges 6 books 7 slot Atron expansion unit joystick 129 progs inc Gridrunner Amok Scramble, Mower Mania plus many more plus mags only £230 ono Contact Belly 36 Moor Top Drive Hemsworth West Yorks

Vic, 64 software exchange Got any unwanted games? Send them to us and we will send you back the game you require Send a stamped addressed envelope for details 15 Meliden Way Penkhull Stoke on Trent Staffs

CBM64 software for sale Radar Rat Race (ROM) £8.00 Revenge of the Mutant Camels Attack of the Mutant Camels Falcon Patrol Hustler Hunchback Savage Pond, Moon Buggy Bear Bowler £3.50, Squash a Frog Centropods 3D Tanx Krypton, £1.50, all including P&P 46 Cathay Street, Glasgow G22 7LU

Attention all Vic-20 and CBM64 users Whether you're a dealer user group, individual or software library do you really know what commercial software there is for the Vic and the CBM64? Well it's taken us ages to come up with the document it covers games utilities education, books and busines software it gives descriptions hardware price independent ratings and suppliers with addresses etc. For delivery asap send cheque/PO for £5.00 UK or £6.00 overseas to Cementis Information, Box 015

LOGO (Turtle Graphics) for Vic-20 plus Super Expander Tape and full manual £7.00 Pay I M George 3 Alexander Close Hayes Kent BR2 7LW

Vic-20: Dutch boy wants to have an english penpal Write to Hessel Pypker Smitsweg 20 gg82 HT, Uithuizer-meeden, Holland

Vic-20/CBM64 Software Hire No membership fee! Quality titles (eg Skyhawk Jetpac Flight 015) from 50p per week Already 500 delighted members Join them now All games originals Send 2 x 17p stamps for your Hirekit (please state which machine) to VSH(CU) 242 Ransom Road Mapperley Nottingham

Vic-20 Word Processor. Victext Powerful word processor Facilities include - Large text buffer auto centre text variable tab insert, amend, delete, copy move text, word count right justify etc Fully menu driven with comprehensive easy to use instructions Needs +16K expansion min Great value cassette £6.95 disk £9.45

Vic-20 Data File. Takes the place of any card index Facilities include save load file sort print all/part records amend, delete records memory remaining, etc. Needs +8K expansion min Cassette £4.50 Both programs can be used with all direct connect Vic printers inc 1520 printer plotter Fast delivery by first class mail Send cheque/PO to A&C Software 51 Ashtree Road Tividale W Midlands B69 2HD

Poker, the classic gambling game Offered to Vic-20 (16K RAM) owners for only £2.25 P&P free From Poker Software PO Box 1 Chatteris, Cambs PE16 6JR

Commodore 64K, 1541 disk drive and 1701 Commodore colour monitor for sale 5 year parts/labour full warranty only 7 months old Also includes Flight Simulator other games and joystick Sell all for £500 Write to Acting Lieutenant J D Hoyle Commando Training Centre Royal Marines, Officers Mess Lympstone, Devon

Calling Vic-20 owners. I need a male or female penpal aged 13 16 to swap games and tips Write to Eric Young, 62 Husband Road Forest Hill Victoria, Australia 3131

Holland CBM64 owner wants to exchange programs (disk) and tips with UK 64 owners Many progs available Please contact Marnix D Tellings 4 Ebstraam 3224 CD Hellevoetsluis Holland

Vic-20 owners, penpal wanted age 13 to 15 boy or girl Write or phone or send a program on tape to Chris 19 Ardfin Road Prestwick Ayrshire Scotland Will reply (unexpanded Vic)

Vic-20 £40.00; C2N (Vic 64) £25.00, Vixen 16K switchable RAMpack (guaranteed) £25.00 30 software titles includes tap games utilities educational £2.00 each books (offers) Accept resonable offers on single items or the lot Tel Coventry (0203) 306449

Commodore 64, C2N cassette unit only £200 Unwanted gift Free joystick Phone Amar (01) 574 8583 or (01) 571 3051 Also 1525 printer £200 plus printer paper and labels and free wordwizard program

Commodore 64 software to swap or sell Many British and American titles Programs include Zaxxon Blue Max Jumpman Jr and many more Write (send your lists) to Per Olav Strava, 4274 Stol Norway (All letters answered)

CBM64 Vic-20 Hardware Utility Load from C2N cassette and copy at some time to second recorder Plus system reset button £7.00 inc or sae for details A Denby 6 Ropewalk Alcester, Warks B49 5DD

COMMODORE 64
THREE SUPERB UTILITIES

★★★ NEW RELEASE ★★★ NEW RELEASE ★★★

No.1 1541 Disk Management A menu-driven 20 function disk management utility Features include edit track/sector, disk back-up, protect/unprotect programs plus enhanced and normal disk commands Possibly the only disk utility you will ever need. £8.75 (disk only)

No. 2 Tape Back-Up Utility This will assist the user to make personal security copies of their software onto tape or disk. Two versions available on one tape. £4.99 on tape or £6.99 on disk

No. 3 CKS Monitor A 15 function machine code monitor, includes assemble, disassemble and all other usual commands. Supports cassette, disk and printer £5.75 on tape or £7.75 on disk

All programs are supplied with full written instructions and are despatched by first class post. Send cheque/POs or sae for full details to Clark Kent Software,

28, North Cape Walk, Corby, Northamptonshire NN18 9DQ.

from graphic response for the Spectrum* & COMMODORE 64
Programmers Wipe Clean Planning Sheets

- 3 (*2) Double Sided, High Quality, Easy to Use Graphic & Audio Planning Sheets. Helps with "THOSE DATA STATEMENTS!"
- Plan Your Characters – Sprites – Screen Graphics – Colours & Sound Effects. All Registers & Addresses given in Dec & Hex
- Plastic Laminated Sheets
- Simply Wipe Clean after Use
- Character Planner
- Hi Resolution Screen Map
- Audio Cnb & Planner
- Double Sprite Planner
- Screen & Colour Map
- Pen Included

Send £5.95 (Spectrum £4.95) P&P free (U.K.) to graphic response Box No. 013 EMAP Business and Computer Publications Ltd Priory Court, 30-32 Ferringdon Lane, London EC1R 3AU

SIFIED

Home Accounts. Put your house in order! Probably the best home use for your computer! Comprehensive coverage of bank accounts, credit cards, H.P. etc. Inbuilt accuracy check. Projects cashflow for any period ahead. Available for C64, Vic 20 and Commodore 16. £8.45 or free details from: Discus Software, Freepost, Windmill Hill, Bitsham TQ5 9BR. Tel: 080 45 55532.

Commodore 64, C2N cassette recorder, joystick, paddles, plus computer dust cover, five games including Hobbit. Also Reference Guide with two other books. Computer only three months old, worth overall £310, sell £200 ono. Ring: Petham 602 (evenings). Canterbury area, Kent.

Software for sale for the Vic 20 including many expanded games such as Krazy Kong and Jet Pack. If you want one of these games please contact Alex on 01 940 5767 or Paul on 01 940 2012.

Vic-20 8/16K Hi-res drawing (without Superexpander) 174x160 pixels. Draw (m/c). Point (m/c). Circle, Ellipse, Sprol, Triangle, Square, Joystick functions. Store drawings on tape, 1520 printer and in memory (16K). Tape with machine code routines, demo programs, sample drawings/maps, plus instructions for £2.50 from: A. Blomberg, 134 Aldebury Road, Maidenhead, SL6 7HE.

Penpals wanted, male or female, 12-17 years, to exchange games programs, ideas, etc. Vic users only! Alan Simpson, 64 Moorside South, Fenham, Newcastle-upon-Tyne, NE4 9BB.

Wanted: girl penpal aged 13-15, must own Vic 20, no experience of programming needed. Swap listings etc. If interested please write to Paul Hodkinson, 15 Teesdale Avenue, N.S. Blackpool, Lancs, FY2 0TH.

Graphix 64, over twenty commands enables you to plot/erase points, draw lines and fill/erase areas on screen. (As advertised in Vicsoft magazine). Used only twice. Bargain at £8.50. Tim Bak, 117 Kingsway, Braunstone, Leicester, LE3 2PL.

Vic-20 plus Programmer's Aid 16K RAM Stack motherboard, Stack rite, Intro to Basic 1 & 2, £80 plus of software – Wacky Waiters & Flight Path 737, £30 plus of books including Your Computer & Commodore User. All in good condition, 1½ years old. Price £160 ono. Paul Bateman, 154 Morley Street, Goole, North Humberside. Tel: 04054313.

Vic-20 plus C2N cassette plus 16k. Great condition. Misc software (Arcadia etc). Programmers Reference Guide, magazines. Bargain at £150. Jeremy Webb, Field House, Saint Edwards, Oxford. Tel: Oxford 54378.

Vic-20 plus C2N plus 16K plus 4 learning tapes plus 4 games tapes plus 3 Vic books plus dust cover plus ZX printer and interface plus many comp mags. £150. Tel: (0482) 863443.

Vic-20, C2N cassette deck, 3K RAM pack, Super Expander cartridge, motherboard, over 70 games and utilities including 40 column conversion, machine code compiler. Reasonable offers to Woking 67693.

NOW!

Interface and Cable for the Serial Printer

Connects the Commodore SX64, 64 and VIC 20 to most RS232 Printers. User Port to Printer.

Barclaycard telephone orders accepted.
Telephone 061-480 9628
Allow up to 28 days for delivery.
U.K. Customers only. Send Cheque/P.O. to:-

Access Computer Co.Ltd

Available only from: The Computer Centre, 61 Shaw Heath, Stockport, Cheshire, SK7 6BH. Telephone 061 477 6013

Superbase 64

TRANSFORMS THE COMMODORE 64 INTO A FULL FEATURED PROFESSIONAL DATABASE SYSTEM, WITH UP TO 1000 CHARACTERS PER RECORD ON UP TO 4 SCREENS... AND UP TO 128 ITEMS PER RECORD. DEFINABLE AS KEY, TEXT, NUMERIC, CONSTANT, RESULT OR DATE. SUPERBASE 64 EVEN HAS A SPREADSHEET AND IN FILES OF UP TO 16M CHARACTERS! CALCULATION CAPABILITY, CALENDAR FUNCTIONS, EASY INPUT FROM WORDPROCESSOR OR DATA FILES, BOTH MENU-DRIVEN AND PROGRAM OPTIONS, SORTING/SEARCHING, FULLY DEFINABLE OUTPUTS... SUPERBASE 64 IS ESSENTIAL IF YOU WANT THE MOST FROM YOUR 64! SUPPLIED ON 154 DISK WITH EXCELLENT TUTORIAL/REFERENCE MANUAL PLUS AUDIO LEARNING TAPE... AND THERE'S A WIDE CHOICE OF "GET-YOU-GOING" APPLICATION STARTER PACKS AT ONLY £9.95 EACH!

OUR PRICE ~~£99.95~~ £88.00

Jetpack

YOUR PROGRAMS WILL REALLY TAKE OFF WITH DTL JETPACK! FULLY COMPATIBLE WITH BASIC, JETPACK COMPILES BASIC PROGRAMS INTO MACHINE CODE, RUNNING UP TO 25 TIMES FASTER AND EVEN USING UP TO HALF AS MUCH MEMORY... AND IT ACCEPTS EXTENDED BASIC AND MACHINE CODE ROUTINES TOO!

OUR PRICE (DISK) ~~£39.95~~ £35.95

FIGARO 64

AT LAST, AN EASY-TO-USE YET FEARFUL NUMERIC DATABASE, WITH A FULL RANGE OF BUILT-IN STATISTICAL FUNCTIONS, PLUS FORECASTING, CALCULATION AND MIXED HI-RES/TEXT GRAPHICS. SUPPLIED ON DISK WITH CLEAR, COMPREHENSIVE MANUAL, FUNCTION-KEY OVERLAY, DEMO PROGRAM.

OUR PRICE ~~£86.95~~ £75.00

Vizawrite 64

VIZAWRITE 64 IS A HIGH-PERFORMANCE, LOW COST WORD PROCESSOR, WITH ON-SCREEN FORMATTING, THAT TAKES FULL ADVANTAGE OF THE 64'S COLOUR, GRAPHICS AND MEMORY FEATURES... AND SUPPORTS VIRTUALLY ANY PRINTER! WITH A COMPREHENSIVE AND EASY-TO-FOLLOW USER REFERENCE MANUAL, VIZAWRITE IS THE ULTIMATE PERSONAL COMPUTER WORD PROCESSOR! AVAILABLE ON CARTRIDGE (~~£99.95~~ £78), DISK (~~£79.95~~ £68) OR WITH VIZASPELL (~~£99.95~~ £85).

*** WANT IT TOMORROW? *** CALL US TODAY! *** ON 01-546-7256

VIZASPELL	(DISK)	~~£99.95~~	£49.95	MULTIPLAN (US)	(DISK)	~~£99.95~~	£47.95
VIZASTAR	(DISK)	~~£99.95~~	£89.00	PRACTICALC	(DISK)	~~£44.95~~	£39.95
DTL JETPACK	(TAPE)	~~£99.95~~	£34.95	PRACTICALC	(TAPE)	~~£39.95~~	£34.95
EASYSCRIPT	(DISK)	~~£75.00~~	£69.00	MASTER 64	(DISK)	~~£115.00~~	£64.95
EASYSPELL	(DISK)	~~£50.00~~	£41.95	TNI TOOL	(CART)	~~£99.95~~	£39.95
SIMON'S BASIC	(CART)	~~£50.00~~	£41.95	HOMEBASE 1-A	(DISK)	.....	£17.95
ASSEMBLER 64	(DISK)	~~£99.95~~	£21.95	PRINTLINK 64 INTERFACE			£29.95

PRICES INCLUDE 15% VAT AND ARE CORRECT ON GOING TO PRESS. ORDER BY POST OR PHONE, USING ENQUIRY, ACCESS/BARCLAYCARD OR OFFICIAL ORDER. DESPATCH BY SAME-DAY 1ST CLASS POST. PRE-PAID ORDERS FREE. PRODUCT DATA AVAILABLE ON REQUEST. REF A30

Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QL. TEL: 01-546-7256

Ad – Index

Access Computers	106	K Tel	90
Adamsoft	33	Kuma	51
Anger	77	Level 9	47
Anirog	61	Lothlorien	104
Arxon	103	MBS Software	100
Atlantis	77	Microcentre	102
Audiogenic	112	Micro-de Bug	103
B.S.F. Computers	71	Micromega	83
Beyond Software	90	Micropower	56 64
Braingames	97 100	Microsecurity	105
Calco Software	95 109	Miles Better Software	99
Calisto	10	Mirrorsoft	13
Cascade	74	Musicalc	43 & 44
Cheetah Marketing	12	New Generation Software	73 & 79
Chromasonic	34	Ocean	2, 105
Classic	77	Paramount	31
Commodore	5 & 9 23 56 & 57	Piper	89
Computerama	73	Quicksilva	62 & 63
Computer Games	88	RAM	39
Creative Sparks	32, 96	Reset	41
DACC	103	Richard Shepherd Software	66 80
Database Publications	82	SMT	58
Dialog	91	Saxon	105
Domark	80	Shiva	76
Ebury Press	50	Simple	85
Electronic Aids	88	64 Plus	90
First London Micro Market	29	64 Software Centre	20
Gala Soft	87	Sophisticated Games	90
HCC	44	Spinnaker	7
HAGO	36	Stack	36 & 37
Hewson	25	Statesoft	87
Impex Designs	99	Taskset	111
Infrascope	100	US Gold	19
Intercepter	17	Virgin	95, 97 103, 105
Interface	94	Visa	92
JCB Microsystems	74	Vulcan	97

Commodore User is published twelve times a year by EMAP Business and Computer Publications Ltd

Subscriptions and Back Issues are handled by B.K.T. Subscription Services Dowgate Works Douglas Road, Tonbridge Kent TN9 2TS Telephone 0732 351216

Annual subscription (UK) £12.00 (Eire) £IRL 17.00 (Europe) £18.00 (Rest of the World) £32.00

Printed by Garrod & Lofthouse Ltd, Crawley; Photosetting by PDQ, London N10, telephone 01 444 0359; Reproduction by Elan Litho Ltd, London EC2 Distributed by Associated Newspapers.

Material is accepted on an 'all rights' basis unless otherwise agreed. Enclose SAE if you want the return of original manuscripts and photographs.

All material is copyright Commodore User 1984 and contributors. No part of this issue may be reproduced in any form without the prior consent in writing of the publisher other than short excerpts quoted for the purposes of review and duly credited. The publishers do not necessarily agree with the views expressed by contributors and assume no responsibility for errors in reproduction or interpretation in the subject matter of this magazine or any results arising therefrom.

ISSN 0265-721X

CLASSIFIED ORDER FORM

Sections (tick one only):

Sales ☐ Wants User Groups ☐ Penpals ☐ Miscellaneous

Issue dated ☐☐☐☐☐☐☐☐☐

Text of advertisement (30 words free – first word will be bold)

Do you require a box number (price £5 per insertion)? Yes ☐ No ☐

Your Name: _____

Address: _____

_____

_____

Phone: _____

Total enclosed (if any): _____

FREE ADS

How to use the Classified Ad section:

First tick the box under which you want your ad to appear indicate how many times you want it to appear (one or two) then write your ad, using one word per box. The first word will be printed in bold type

If you want an ad in one of the FREE sections, you can have up to 30 words – though they'll have to include your name and address.

When it stops being free:

If you want more than 30 words, each additional word will cost you 7p per insertion.

If you want a box number – that is, we collect the replies and forward them to you – that will cost you £5 per insertion. Don't bother to include the Box No as part of your ad just tick the 'Box No box

When it's not free at all:

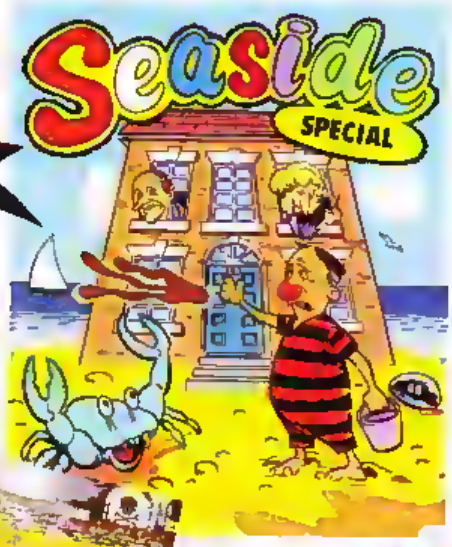
Only individuals or user groups can have a FREE ad if you're a company or some other profit-making operation, contact the Ad Department for rates (01-241 2417) That also applies if you have a product of your own to sell.

How to pay:

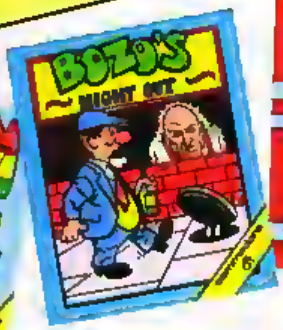
Cash with the order form, please otherwise your ad won't go in.

Taskset & commodore 64

NEW

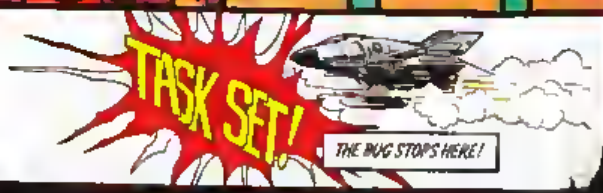


Cassette £6.90
Disk £9.99
Available Worldwide



Taskset Ltd

13 HIGH STREET BRIDLINGTON YO16 4PR
ACCESS ORDERS (0262) 673798 24 HOURS
Dealer enquiries welcome (0262) 602668



commodore 64

Alice IN VIDEOLAND

NOW ON CASSETTE!

PURE MAGIC!

Join Alice in her journey through Videoland - an enchanted place populated by strange creatures such as bread-and-butterflies and pipe smoking caterpillars; where little girls change size and flamingos turn into croquet mallets!

Alice in Videoland is a revolutionary new concept in entertainment for the Commodore 64, incorporating some of the finest graphics ever seen on any home computer, accompanied by a charming musical score. There are four different game scenes involved, and your performance in earlier ones will affect your ability to get through later ones and determine your eventual total score.

Scene One - Stunning title page graphics give way to the first game scene as Alice falls into the rabbit's warren. Score points for collecting the objects to be found there - including keys to open doors, bottles to make her smaller, cakes to make her bigger!

Scene Two - Out in the garden the Cheshire cat looks on as Alice meets the pipe-smoking caterpillar. Help her to catch the bread-and-butterflies and the rocking-horse flies that change into the balls used in the croquet game in the last scene!

Scene Three - Alice is a pawn in the chess game where her opponents are the Jabberwocky and Tweedledum and Tweedledee. Help her across the board by protecting her with your White Knights!

Scene Four - The most bizarre croquet game ever! Help Alice hit the balls through the playing-card-soldier hoops before the Queen of Hearts stomps on them!

Alice in Videoland is available for the Commodore 64 on disk - £12.95, and now on cassette - £8.95

Alice in Videoland features graphics created with the Koala Pad

Audiogenic LTD

P.O. BOX 88, READING, BERKS

SEND FOR **FREE** COLOUR CATALOGUE!